IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MONUMENT PEAK VENTURES, LLC, Plaintiff, V. HITACHI, LTD. AND HITACHI KOKUSAI ELECTRIC INC. Defendants.	§ § § § § § § § § §	Civil Action No. 2:20-cv-00098 JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff, Monument Peak Ventures, LLC ("MPV" or "Plaintiff"), by and through its undersigned counsel, respectfully submits this Complaint against the above-named Defendants, as follows:

NATURE OF THE ACTION

1. This is a patent infringement action to stop Defendants' infringement of United States Patent Nos. 6,241,668 (the "'668 patent"); 7,233,684 (the "'684 patent"); 7,418,116 (the "'116 patent"); 6,396,599 (the "'599 patent"); 8,643,746 (the "'746 patent"); 8,665,345 (the "'345 patent"); and 9,013,604 (the "'604 patent") (collectively, the "Patents-in-Suit").

THE PARTIES

2. Plaintiff, Monument Peak Ventures, LLC, is a Texas Limited Liability Company with an office and place business in Plano, Texas.

3. On information and belief, Defendant Hitachi Ltd. ("HL") is an entity organized and existing under the laws of Japan with its principal place of business at 6-6, Marunouchi 1-chome, Chiyoda-ku, Tokyo, 100-8280 Japan.

4. On information and belief, Defendant, Hitachi Kokusai Electric, Inc. ("Kokusai") is an entity organized and existing under the laws of Japan with its principal place of business at Hitachi

Atago Bldg.6F, 2-15-12, Nishi-shimbashi, Minato-ku,Tokyo 105-8039, Japan.

5. Hereinafter, HL and Kokusai are collectively referred to as "Hitachi" or Defendants.

JURISDICTION AND VENUE

6. This Court has subject matter jurisdiction over MPV's claims for patent infringement pursuant to the 28 U.S.C. §§ 1331 and 1338(a).

7. Upon information and belief, this Court has personal jurisdiction over Defendants in this action, including because they have committed acts within this State giving rise to this action and have established minimum contacts with this forum such that the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and substantial justice. Including individually and/or by and through affiliates, Defendants have committed acts of patent infringement and have regularly and systematically conducted and solicited business in this District, including via affiliates, by and through at least the sales and offers for sale of Defendants' products and/or services in this District.

8. Venue is proper in this District under 28 U.S.C. §§ 1391(b) and 1400(b) at least because all Defendants are foreign corporations for which venue is proper at least under 28 U.S.C. § 1391(c)(3).

NATURE OF THE ACTION

9. This is a civil action for infringement under the patent laws of the United States, 35 U.S.C. § 271 et seq.

10. MPV owns all right, title and interest in the "Patents-in-Suit", including all rights to sue and collect damages for past, present and future infringement thereof.

11. MPV alleges that Hitachi directly and indirectly has infringed and/or continues to infringe the Patents-in-Suit by, *inter alia*, making, using, offering for sale, selling, importing, using (including in connection with internal uses and/or demonstrations) and/or inducing such actions,

including in connection with providing the infringing products and instructions/specifications for their use. MPV seeks damages and other relief for Hitachi's infringement of the Patents-in-Suit.

12. MPV has made infringement information available to Hitachi through a data room that included a full list of all patents owned by MPV and evidence of use presentations detailing certain of Hitachi's infringement.

13. Hitachi has had actual and/or constructive notice of the infringements alleged herein, including as noted herein.

The '684, '116, '599, '746, '345 and '604 Patents Come From the Iconic Kodak Patent Portfolio

14. The '684, '116, '599, '746, '345 and '604 patents claim inventions born from the ingenuity of the Eastman Kodak Company ("Kodak"), an iconic American imaging technology company that dates back to the late 1800s. The first model of a Kodak camera was released in 1888.

15. In 1935 Kodak introduced "Kodachrome," a color reversal stock for movie and slide film. In 1963 Kodak introduced the Instamatic camera; an easy-to-load point-and-shoot camera.

16. By 1976 Kodak was responsible for 90% of the photographic film and 85% of the cameras sold in the United States.

17. At the peak of its domination of the camera industry, Kodak invented the first self-contained digital camera in 1975.

18. By 1986 Kodak had created the first megapixel sensor that was capable of recording 1,400,000 pixels. While innovating in the digital imaging space Kodak developed an immense patent portfolio and extensively licensed its technology in the space. For example, in 2010, Kodak received $838,000,000 in patent licensing. As part of a reorganization of its business, Kodak sold many of its patents to some of the biggest names in technology that included Google, Facebook, Amazon, Microsoft, Samsung, Adobe Systems, HTC and others for $525,000,000.

19. While scores of digital imaging companies have paid to license the Kodak patent portfolio

owned by MPV, Toshiba has refused to do so without justification.

Count 1 – Infringement of U.S. Patent No. 6,241,668

20. The application for U.S. Patent No. 6,241,668 (the "'668 patent) was filed on January 15, 1999 and the patent issued on June 5, 2001. The '668 patent application also has priority from German (DE) patent application no. 198 02 572 filed on January 23, 1998.

21. At the time of the '668 application, conventional medical system architectures did not allow a clear identification and allocation of the examined patient to the patient files. Conventionally, clear, machine-readable patient identifiers employed a name and/or ID number, for example, which have been added to the digital image data files in a portion thereof known as a header. An unmistakable identification of the patient, however, was not achieved by such conventional headers. Further, in many medical cases such as in endoscopy, surgery, and for skin diseases, photographic images would be advantageous for the diagnosis and the history of the disease, by allowing one to visibly document success of a treatment by means of such photographic images.

22. Conventional prior art is represented by the primary reference cited during prosecution, which was U.S. Patent No. 6,076,066 to Di Rienzo, *et al.* However, Di Rienzo did not disclose, among other things, the combination of a camera for obtaining an optical image of a patient with an imaging system which produces a medical image of the patient; with the photographic image and the medical image, and patient relevant data being electronically combined and electronically stored to unambiguously identify the patient. Without limitation, the only use taught for the Di Rienzo scanner was to scan x-ray images to convert the image into digital data, which was then combined with patient data for electronic storage as an insurance claim form. Di Rienzo had no more than the conventional approach of attaching patient data to medical images, which is described in the introductory portion of the '668 specification. This

known technique involved only the use of text data for providing information about the patient.

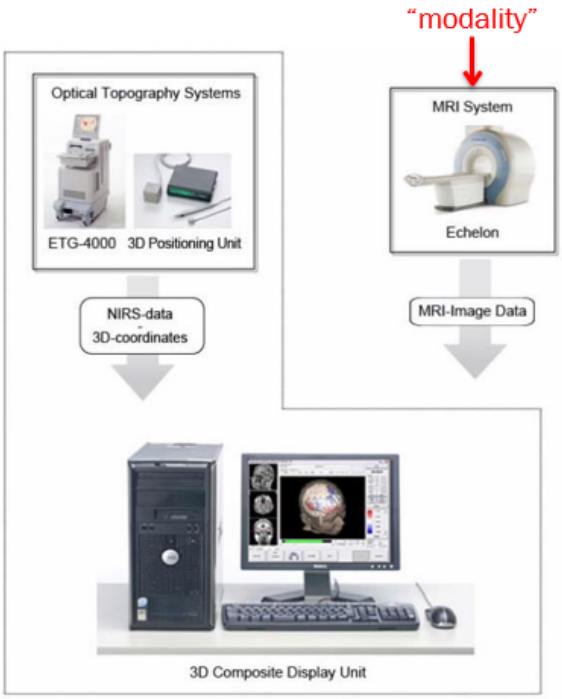
23. These and other shortcomings in conventional prior art were solved by the unconventional and inventive systems, apparatuses and architectures of the '668 claimed inventions. Juxtaposing the '668 claimed inventions against the inferior, conventional state of the art illustrates in part the unconventionality and inventiveness of the '668 claimed inventions.

24. Claim 1 of the '668 patent covers "[a] medical system architecture comprising: at least one modality for producing a medical image of an examination subject; a work station for processing said medical image and for entering patient-related data for permanent association with said medical image; a communication system connected to said work station for communicating said medical image and said patient-related data to a location remote from said work station; a central storage unit connected to said communication system for storing said medical image and said patient-related data; and an optical image generating unit for generating digital data comprising a photographic image showing an external appearance of said examination subject, and including means for entering said digital data into said work station for permanent association in said patient-related data with said medical image for unambiguously identifying said examination subject."

25. At least claim 1 of the '668 patent has been infringed by HL, including under 35 U.S.C. §271(a)-(b), at least by its having made, used, sold, offered for sale and/or imported MRI Systems, including without limitation Echelon and Echelon Oval, and associated work stations, including without limitation Vertex and Vertex II computers (the "'668 Infringing Instrumentalities"). Without limitation, sale, importation and/or use of the '668 Infringing Instrumentalities has comprised and/or has previously induced the steps noted below.

26. The '668 Infringing Instrumentalities comprise a medical system architecture comprising the medical imaging modality, workstation communication system a central storage

unit and optical image generating unit noted below. Without limitation, the '668 Infringing Instrumentalities include an MRI System (i.e., "at least one modality") for producing MRI-image data (i.e., "medical image") of a patient (i.e., "examination subject"); and a computer (i.e., "work station") for processing the MRI-image data and for associating the same with the corresponding patient (i.e., "entering patient-relating data for permanent association with said medical image"). Without limitation, *see, e.g.*, http://www.hitachimed.com/products/OpticalTopography/Options and http://www.hitachimed.com/products/mri/echelon/?WT.ac=med_mg_pro_mri_ecln:



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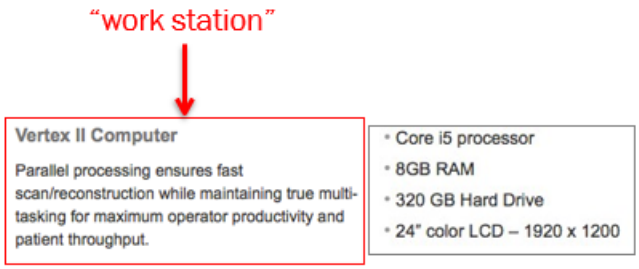
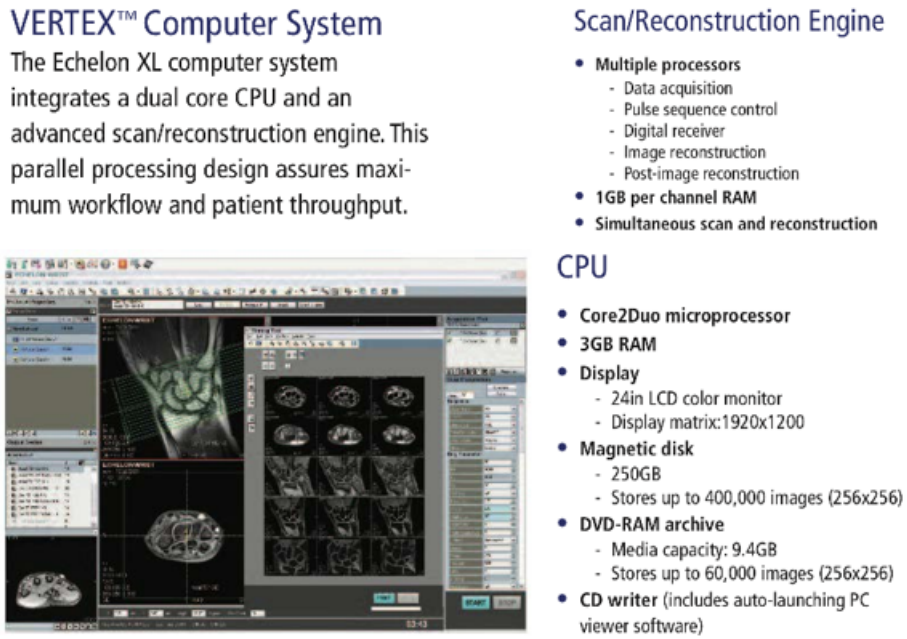


27. The '668 Infringing Instrumentalities comprise a workstation for processing said medical image and for entering patient-related data for permanent association with said medical

image. Without limitation, the '668 Infringing Instrumentalities include an MRI System for producing MRI-image data of a patient, and a computer for processing the MRI-image data and for associating the same with the corresponding patient (i.e., "entering patient-relating data for permanent association with said medical image"). Without limitation, *see*, *e.g.*, http://www.hitachimed.com/idc/groups/hitachimedical/documents/supportingdocumentpdf/poc_021815.pdf:



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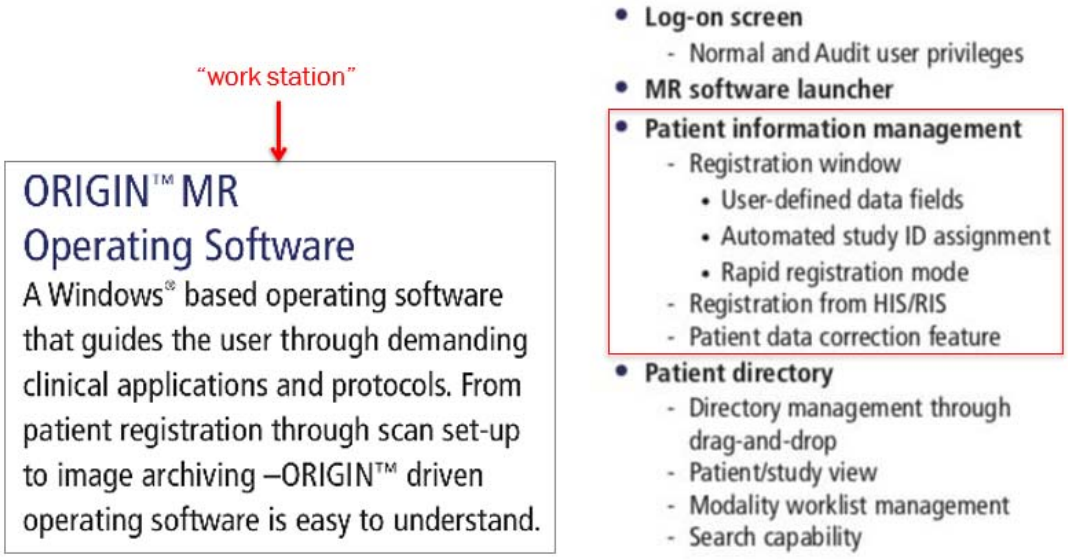
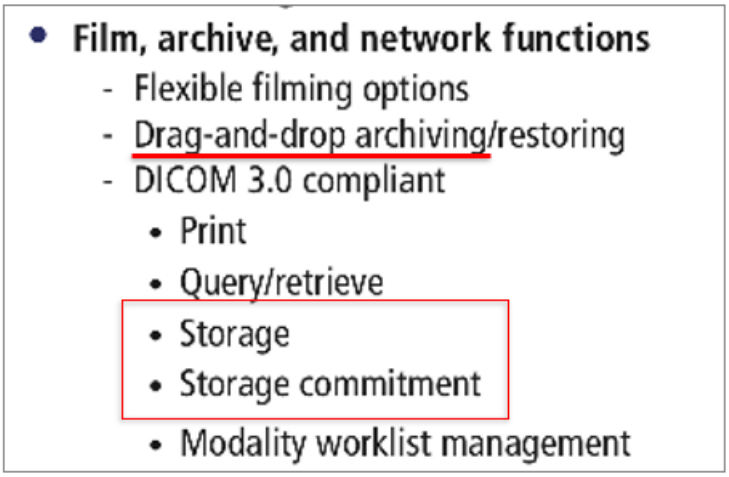


28. The '668 Infringing Instrumentalities comprise a communication system connected to said workstation for communicating said medical image and said patient-related data to a location remote from said workstation, and a central storage unit connected to said communication system for storing said medical image and said patient-related data. Without limitation, the '668 Infringing Instrumentalities comprise a communication system connected to a computer for communicating the patient MRI-image data to a remote DICOM archive server (i.e., "location remote from said work station"), and it further includes an electronic storage (i.e., "central storage unit") connected to HL's communication system for storing the patient MRI-image data. Without limitation, *see, e.g.*, http://www.hitachimed.com/idc/groups/hitachimedical/documents/supportingdocumentpdf/poc_021815.pdf and http://www.hitachimed.com/products/OpticalTopography/Specifications:



and

This document specifies the conformance of the Hitachi MR scanners to the DICOM 3.0 standard. It is intended to facilitate the process of interconnection between the Hitachi scanners and other DICOM 3.0 compliant devices. This document by itself however, does not guarantee interconnectivity or interoperability with other devices. It will be up to the user to make sure that all connected DICOM devices have been validated and will successfully inter-operate. *This validation needs to be performed prior to the clinical use of any data obtained from the Hitachi scanners as well as when images acquired on non-Hitachi equipment is processed or displayed on the Hitachi MR console.* Any non-Hitachi vendor should accept full responsibility for all validation required for their connection with the Hitachi scanners. Hitachi will participate with the validation process whenever required to.

and

2. Implementation Model

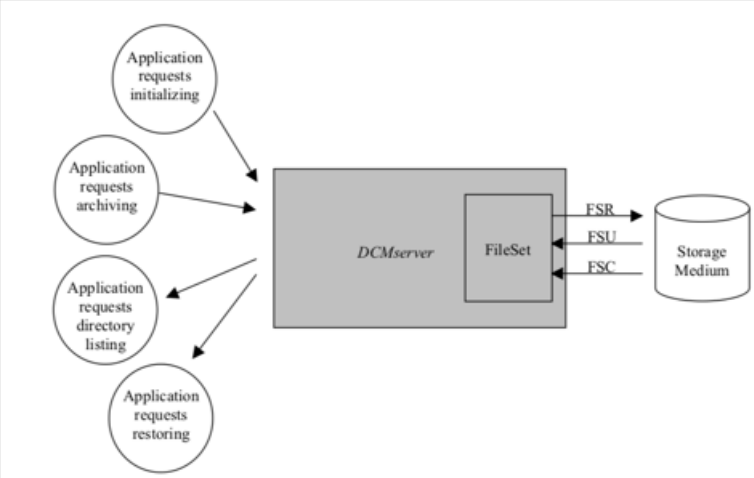
2.1 Image Transfer and Storage Commitment

The Hitachi MR DICOM Server (*DCMserver*) is implemented as a single Application Entity.

Once it has a configuration, *DCMserver* is capable of:

- accepting associations from remote AEs wishing to Query/Retrieve/Store Information Objects in the local database or wishing to establish verification association,
- accepting associations from remote AEs wishing to respond to Storage Commitment requests originated by the Hitachi MRI system, and
- initiating associations to Query/Retrieve/Store/Commit Information Objects in remote AE's

and



and

Patient Medical Module Attributes

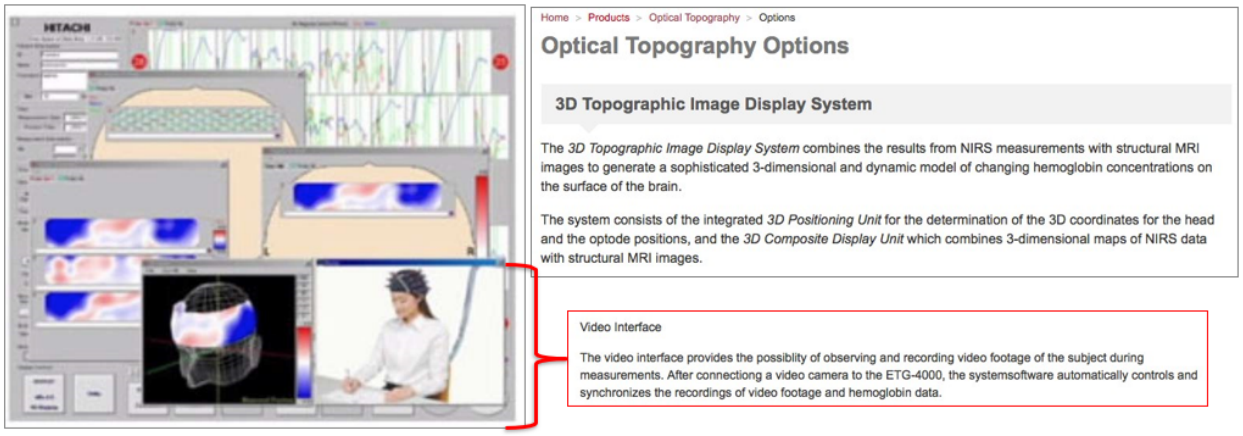
Attribute Name	Tag	Type
Medical Alerts †	0010,2000	3
Contrast Allergies †	0010,2110	3
Smoking Status †	0010,21A0	3
Pregnancy Status †	0010,21C0	3

† This tag can be suppressed to transfer by changing Patient Registration Setting on the Hitachi MR scanners.

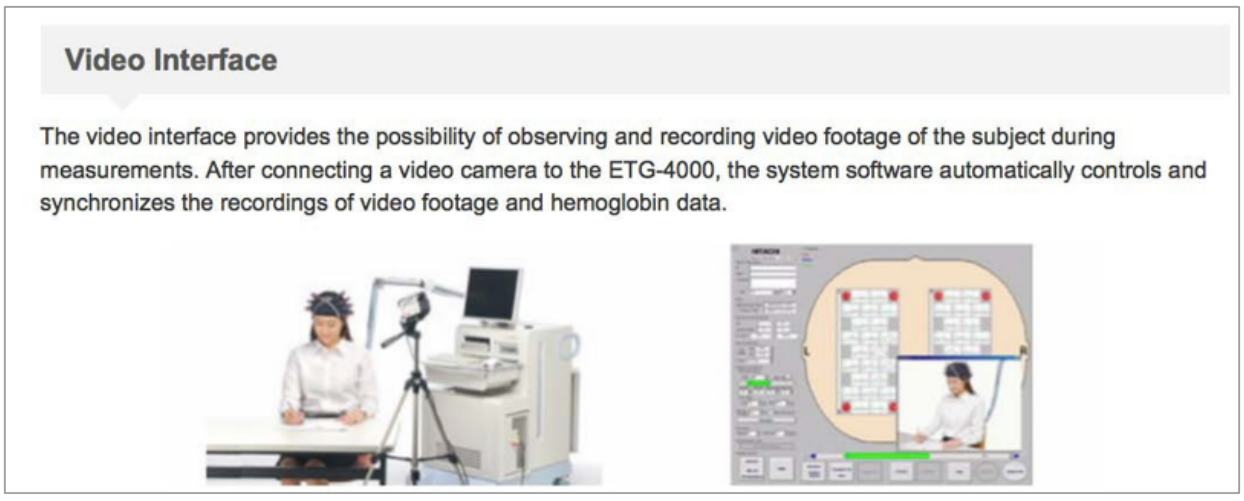
DCMserver may connect to one media. The *DCMserver* may have a local/remote storage media that may contain various SOP instances. These may have been obtained by original creation, network transfer or by removable media using other application entities. These instances of other application entities are external to this conformance statement.

29. The '668 Infringing Instrumentalities comprise an optical image generating unit for generating digital data comprising a photographic image showing an external appearance of said

examination subject, and including means for entering said digital data into said work station for permanent association in said patient-related data with said medical image for unambiguously identifying said examination subject. Without limitation, HL's medical system architecture includes a video recording unit (i.e., "optical image generating unit") for generating video data (i.e., "digital data") including a photographic image showing an external appearance of the patient, and includes input/processing components for synchronizing the video data into the computer for permanent association with the MRI-image data to identify the patient. Without limitation, *see, e.g.*, http://www.hitachimed.com/products/OpticalTopography/Specifications and http://www.hitachimed.com/products/OpticalTopography/Options:



and



30. During the period of the '668 patent's term in which HL had been notified of its infringement, its acts of infringement of the '668 patent were willful and intentional under the standard of *Halo*. HL was made aware of its infringement of the '668 patent, including via an infringement chart, at least in November 2018. HL's infringement has been and remains clear, unmistakable and inexcusable. On information and belief, HL knew or should have known of its clear, unmistakable and inexcusable infringing conduct at least as early as November 2018.

31. Including based upon the facts set forth above, MPV believes and contends that HL's knowing and intentional pre-suit and post-suit continuance of its unjustified, clear, and inexcusable infringement of the '668 patent since receiving notice (see above) of its infringement of the '668 patent, is willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful and flagrant, and that it constitutes egregious misconduct worthy of a finding of willful infringement. Accordingly, since at least November 2018, HL has willfully infringed the '668 patent.

32. Further, since at least November 2018, HL has actively induced the direct infringement of customers and/or end users, including by providing the '668 Infringing Instrumentalities and instructions/specifications for their use, and including with the intent that such direct infringement occur.

33. The '668 Infringing Instrumentalities clearly meet the asserted claim limitations. On information and belief, usage of the '668 Infringing Instrumentalities by customers and/or end users satisfies the claim limitations for direct infringement. Further, at minimum, the provision of products that infringe and/or provision of instructions/specifications for infringing usage constitutes inducement of directly infringing usage.

34. Further, as noted above, HL was made aware of infringement of the '668 patent through use of the '668 Infringing Instrumentalities, including via an infringement chart, at least in November 2018. Such direct and induced infringement has been and remains clear,

unmistakable and inexcusable. On information and belief, HL knew or should have known of the clear, unmistakable and inexcusable direct and induced infringing conduct at least as early as November 2018. Thus, on information and belief, HL has, since at least November 2018, specifically intended to induce direct infringement by customers and/or end users.

35. HL's prior acts of direct and indirect infringement of the '668 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of HL's wrongful acts in an amount subject to proof at trial.

Count 2 – Infringement of U.S. Patent No. 7,233,684

36. The application for U.S. Patent No. 7,233,684 (the "'684 patent) was filed on November 25, 2002, and the patent issued on June 19, 2007.

37. At the time of the '684 application, the volume of digital images that were available was rapidly increasing. However, users often did not immediately print or otherwise use the digital images, but instead opted to upload digital images to an electronic storage device or data storage medium for later use. Personal computers, personal digital assistants, computer networks, optical, magnetic and electronic storage mediums, so-called set top television devices and other electronic image storage devices were increasingly being used to store digital still and motion images. Therefore, the task of classifying or cataloging digital still and motion images on such storage devices in a way that they would be easily accessible by the user was becoming increasingly important.

38. Conventionally, some users created large personal databases to organize the digital still and motion images on such storage devices. However, because of the time and effort necessary to review and categorize images, these databases were typically only rarely used and updated.

39. Thus, at the time of the '684 application, what was needed included a way to help organize and categorize images with reduced emphasis on the post capture analysis and

categorization of images.

40. Further, conventionally, even when users made the investment of time and energy necessary to organize images into databases, the databases were typically organized according to various categories such as the date of capture, places, events, people. Often, such categories did not inherently help the user to locate images that are of particular importance or value. Instead the user had to remember the image, and when the image was captured and/or how the user categorized it.

41. At the time of the ‘684 application, what was needed also included a more useful basis for organizing images.

42. At the time of the ‘684 application, it was known to a certain extent that the most memorable categories of events and subsequently pictures were the ones associated with user's feelings or emotions at the time of capture. However, conventional and/or prior art methods attempting to associate pictures with a user’s emotions, etc. were crude and inferior. At the time of the ‘684 application, certain inferior methods attempted to monitor physiological conditions to derive affective information from a wearable capture system that enabled the classification of images as important or unimportant based on biosignals from human body. Such methods made an inference from the biosignals about high importance of the visual information. This, in turn, triggered recording of images from the wearer's camera and sent these images to friends or relatives who would determine a degree of a danger.

43. At the time of the ‘684 application, other, albeit also inferior, methods had been proposed that comprised a wearable video camera with a computer and a physiological sensor that monitored skin conductivity. Such proposed methods were based on detecting a startle response--a fast change in the skin conductance. When the startle response was detected, a buffer of digital images, recently captured by the wearer's digital camera, would be saved and could be optionally

transmitted wirelessly to a remote computer. This proposed selective storage of digital images created an alleged "memory" archive for the wearer which aimed to mimic the wearer's own selective memory response. In another mode of this proposed system, the camera could be set to automatically record images at a specified frequency, when very few responses have been detected from the wearer, indicating that their attention level had dropped.

44. At the time of the ‘684 application, certain other proposed systems had made use of physiological signals to classify images as "important" (i.e., causing rapid change in a biological response) or "unimportant" (i.e., not causing rapid change in a biological response), and were proposed to trigger the wearable camera to store and/or transmit only the "important" images. However, such systems had multiple shortcomings, including shortcomings not present in the ’684 claimed invention.

45. In accordance with certain aspects of the ‘684 invention, using affective information, digital still and video images can be classified including based on information indicative of the intensity and nature of specific emotions. Such classifications can people help to quickly identify, review and/or share those valuable images.

46. At the time of the ‘684 application, conventional, existing and/or proposed systems, including those noted above did not associate, do not store, and do not transmit the physiological signals, or any other "importance" identifier together with the corresponding images. As a result, "important" images could be easily lost among other images, since there was nothing in these "important" images to indicate that they were "important". This could happen, for example, when the digital image files were used on a different system, when the images were transferred via a recordable contact disk or other media, when the images were uploaded to an on-line photo service provider, etc. Further, such systems provided only binary classification "important-unimportant" and did not allow a finer differentiation between the captured images. As a result, after a certain

time of acquiring images in the user's database, the number of important images became too large to serve the purpose of the importance attribute. Additionally, such systems provided image classification only based on the general "importance" attribute. For example, they were unable to differentiate particular reactions or emotions of the user. Therefore, a wide range of human emotional reactions was not considered in the.

47. At the time of the ‘684 application, the further need existed for improved methods for obtaining affective information and for using the affective information.

48. Conventional prior art is also represented by the primary reference cited during prosecution, which was U.S. Published Patent Application No. 2002/01011619 to Tsubaki, *et al.* However, Tsubaki did not disclose, among other things, collecting affective information comprising the monitoring the physiology of a user and/or a step of collecting affective information comprising interpreting collected physiological information to determine the relative degree of importance of the scene image.

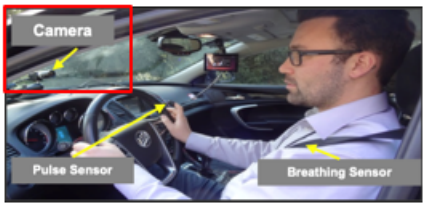
49. The foregoing and other shortcomings in the inferior and conventional prior art were solved by the unconventional and inventive methods of the ‘684 claimed inventions, which comprise collecting affective information at image capture and associating the affective information with the scene image, wherein said collecting comprises monitoring the physiology of a user and interpreting the collected physiological information to determine the relative degree of importance of the scene image. Juxtaposing the ‘684 claimed inventions against the inferior, conventional state of the art illustrates in part the unconventionality and inventiveness of the ‘684 claimed inventions.

50. Claim 1 of the ‘684 patent covers: “[a]n imaging method comprising the steps of: capturing an image of a scene; collecting affective information at capture; and associating the affective information with the scene image, wherein the step of collecting affective information

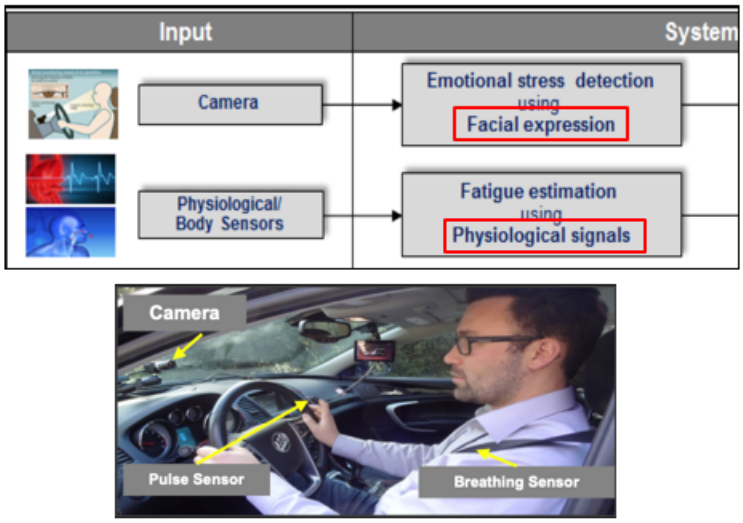
comprises monitoring the physiology of a user and, wherein the step of collecting affective information comprises the steps of interpreting the collected physiological information to determine the relative degree of importance of the scene image."

51. At least claim 1 of the '684 patent is infringed by HL, including under 35 U.S.C. §271(a)-(b), at least by using and/or inducing the use of HL's Occupant Psychophysiological State Monitoring systems (the "'684 Infringing Instrumentalities"). Without limitation, sale, importation and/or use of the '684 Infringing Instrumentalities comprises and/or induces the steps noted below.

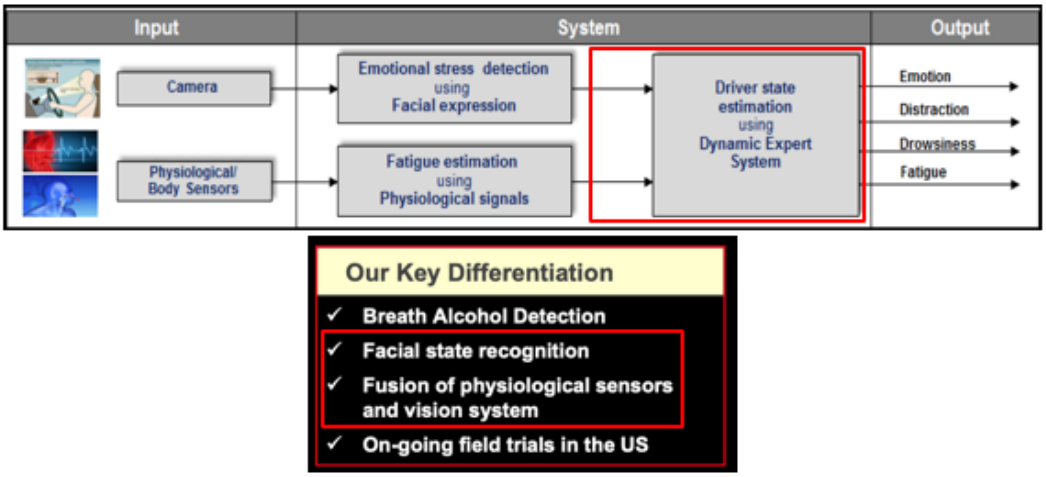
52. The '684 Infringing Instrumentalities comprise an imaging method that comprises capturing an image of a scene. Without limitation, the '684 Infringing Instrumentalities perform an imaging method comprising capturing an image of a driver's face while driving. Without limitation, *see, e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-transportation.pdf:



53. The '684 Infringing Instrumentalities comprise collecting affective information at capture. Without limitation, the '684 Infringing Instrumentalities collect facial expressions and physiological signals (i.e., "affective information") at capture. Without limitation, *see, e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-transportation.pdf:



54. The '684 Infringing Instrumentalities comprise associating the affective information with the scene image, wherein the step of collecting affective information comprises monitoring the physiology of a user and, wherein the step of collecting affective information comprises the steps of interpreting the collected physiological information to determine the relative degree of importance of the scene image. Without limitation, the '684 Infringing Instrumentalities associate the facial expressions and physiological signals with the driving scene, wherein the step of collecting the facial expressions and physiological signals comprises monitoring the movements, etc. (i.e., "physiology") of a driver and analyzing the collected facial and physiological information to determine the driver's emotions, distraction, drowsiness, fatigue, etc. while driving (i.e., "the relative degree of importance of the scene image"). Without limitation, *see, e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-transportation.pdf:



55. HL's acts of infringement of the '684 patent are willful and intentional under the standard of *Halo*. HL's infringement has been and remains clear, unmistakable and inexcusable. On information and belief, HL at least now knows or should know of its clear, unmistakable and inexcusable infringing conduct.

56. Including based upon the facts set forth above, MPV believes and contends that HL's knowing and intentional post-suit continuance of its unjustified, clear, and inexcusable infringement of the '684 patent since receiving notice (see above) of its infringement of the '684 patent, is willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful and flagrant, and that it constitutes egregious misconduct worthy of a finding of willful infringement. Accordingly, since at least receiving notice of this suit, HL has willfully infringed the '684 patent.

57. Further, since at least receiving notice of this suit, HL has actively induced the direct infringement of customers and/or end users, including by providing the '684 Infringing Instrumentalities and instructions/specifications for their use, and including with the intent that such direct infringement occur.

58. The '684 Infringing Instrumentalities clearly meet the asserted claim limitations in their normal and expected usage. On information and belief, normal and expected usage of the '684 Infringing Instrumentalities by customers and/or end users satisfies the claim limitations for

direct infringement. Further, at minimum, the provision of products clearly capable of such infringing usage and/or provision of instructions/specifications for such infringing usage constitutes inducement of directly infringing usage.

59. Such direct and induced infringement has been and remains clear, unmistakable and inexcusable. On information and belief, HL knows or should know of the clear, unmistakable and inexcusable direct and induced infringing conduct. Thus, on information and belief, HL is specifically intending to induce direct infringement by customers and/or end users.

60. HL's acts of direct, indirect and willful infringement of the '684 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of HL's wrongful acts in an amount subject to proof at trial.

Count 3 – Infringement of U.S. Patent No. 7,418,116

61. The application for U.S. Patent No. 7,418,116 (the "'116 patent) was filed on April 30, 2007, and the patent issued on August 26, 2008. The '116 patent is also a continuation of the '684 patent, which means that the earliest effective filing date for the '116 patent is at least November 25, 2002.

62. At the time of the '116 application, the volume of digital images that were available was rapidly increasing. However, users often did not immediately print or otherwise use the digital images, but instead opted to upload digital images to an electronic storage device or data storage medium for later use. Personal computers, personal digital assistants, computer networks, optical, magnetic and electronic storage mediums, so-called set top television devices and other electronic image storage devices were increasingly being used to store digital still and motion images. Therefore, the task of classifying or cataloging digital still and motion images on such storage devices in a way that they would be easily accessible by the user was becoming increasingly important.

63. Conventionally, some users created large personal databases to organize the digital still and motion images on such storage devices. However, because of the time and effort necessary to review and categorize images, these databases were typically only rarely used and updated.

64. Thus, at the time of the ‘116 application, what was needed included a way to help organize and categorize images with reduced emphasis on the post capture analysis and categorization of images.

65. Further, conventionally, even when users made the investment of time and energy necessary to organize images into databases, the databases were typically organized according to various categories such as the date of capture, places, events, people. Often, such categories did not inherently help the user to locate images that are of particular importance or value. Instead the user had to remember the image, and when the image was captured and/or how the user categorized it.

66. At the time of the ‘116 application, what was needed also included a more useful basis for organizing images.

67. At the time of the ‘116 application, it was known to a certain extent that the most memorable categories of events and subsequently pictures were the ones associated with user's feelings or emotions at the time of capture. However, conventional and/or prior art methods attempting to associate pictures with a user’s emotions, etc. were crude and inferior. At the time of the ‘116 application, certain inferior methods attempted to monitor physiological conditions to derive affective information from a wearable capture system that enabled the classification of images as important or unimportant based on biosignals from human body. Such methods made an inference from the biosignals about high importance of the visual information. This, in turn, triggered recording of images from the wearer's camera and sent these images to friends or relatives who would determine a degree of a danger.

68. At the time of the ‘116 application, other, albeit also inferior, methods had been proposed that comprised a wearable video camera with a computer and a physiological sensor that monitored skin conductivity. Such proposed methods were based on detecting a startle response--a fast change in the skin conductance. When the startle response was detected, a buffer of digital images, recently captured by the wearer's digital camera, would be saved and could be optionally transmitted wirelessly to a remote computer. This proposed selective storage of digital images created an alleged "memory" archive for the wearer which aimed to mimic the wearer's own selective memory response. In another mode of this proposed system, the camera could be set to automatically record images at a specified frequency, when very few responses have been detected from the wearer, indicating that their attention level had dropped.

69. At the time of the ‘116 application, certain other proposed systems had made use of physiological signals to classify images as "important" (i.e., causing rapid change in a biological response) or "unimportant" (i.e., not causing rapid change in a biological response), and were proposed to trigger the wearable camera to store and/or transmit only the "important" images. However, such systems had multiple shortcomings, including shortcomings not present in the ’116 claimed invention.

70. In accordance with certain aspects of the ‘116 invention, using affective information, digital still and video images can be classified including based on information indicative of the intensity and nature of specific emotions. Such classifications can people help to quickly identify, review and/or share those valuable images.

71. At the time of the ‘116 application, conventional, existing and/or proposed systems, including those noted above did not associate, do not store, and do not transmit the physiological signals, or any other "importance" identifier together with the corresponding images. As a result, "important" images could be easily lost among other images, since there was nothing in these

"important" images to indicate that they were "important". This could happen, for example, when the digital image files were used on a different system, when the images were transferred via a recordable contact disk or other media, when the images were uploaded to an on-line photo service provider, etc. Further, such systems provided only binary classification "important-unimportant" and did not allow a finer differentiation between the captured images. As a result, after a certain time of acquiring images in the user's database, the number of important images became too large to serve the purpose of the importance attribute. Additionally, such systems provided image classification only based on the general "importance" attribute. For example, they were unable to differentiate particular reactions or emotions of the user. Therefore, a wide range of human emotional reactions was not considered in the.

72. Consequently, at the time of the ‘116 application, the further need existed for improved methods for obtaining affective information and for using the affective information.

73. Conventional prior art is represented by the primary reference cited during the parent ‘684 prosecution, which was U.S. Published Patent Application No. 2002/01011619 to Tsubaki, *et al*. However, Tsubaki did not disclose, among other things, obtaining affective signals including facial characteristics and physiological characteristics of a user of an image capture system and/or determining an emotional state based upon the analysis of said facial and physiological characteristics.

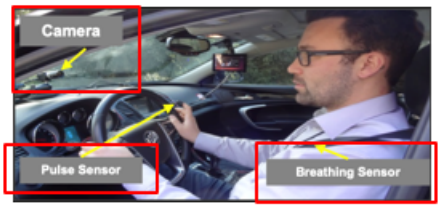
74. These and other shortcomings in conventional prior art were solved by the unconventional and inventive methods of the ‘116 claimed inventions, which comprise obtaining affective signals including facial characteristics and physiological characteristics of a user of an image capture system; analyzing said facial and physiological characteristics; and determining an emotional state based upon the analysis of said facial and physiological characteristics. Juxtaposing the ‘116 claimed inventions against the inferior, conventional state of the art

illustrates in part the unconventionality and inventiveness of the '116 claimed inventions.

75. Claim 1 of the '116 patent covers: "[a] method for determining affective information comprising the steps of: obtaining affective signals including facial characteristics and physiological characteristics of a user of an image capture system; analyzing the facial characteristics; analyzing the physiological characteristics; and, determining an emotional state based upon the analysis of the facial and physiological characteristics of the user."

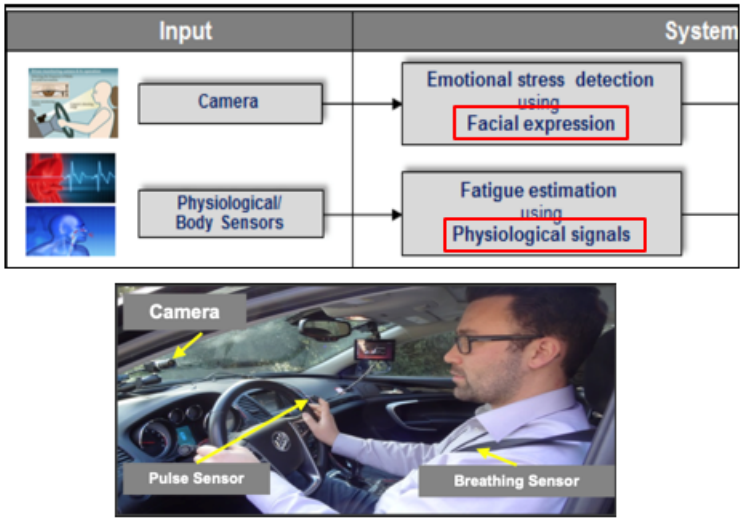
76. At least claim 1 of the '116 patent is infringed by HL, including under 35 U.S.C. §271(a)-(b), at least by using and/or inducing the use of HL's Occupant Psychophysiological State Monitoring systems (the "'116 Infringing Instrumentalities"). Without limitation, sale, importation and/or use of the '116 Infringing Instrumentalities comprises and/or induces the steps noted below.

77. To the extent that the preamble is limiting, the '116 Infringing Instrumentalities comprise a method for determining affective information. Without limitation, *see, e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-transportation.pdf:

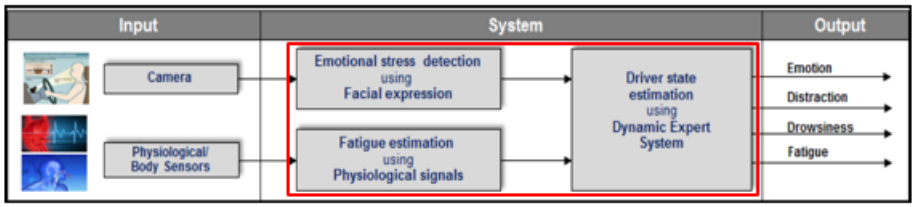


78. The '116 Infringing Instrumentalities comprise obtaining affective signals including facial characteristics and physiological characteristics of a user of an image capture system. Without limitation, the '116 Infringing Instrumentalities obtain signals including facial expression (i.e., "facial characteristics") and physiological signals of a driver (i.e., "user") through

a camera/sensor system (i.e., "image capture system"). Without limitation, *see*, *e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-transportation.pdf:

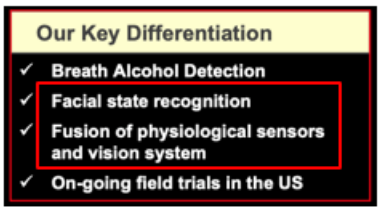


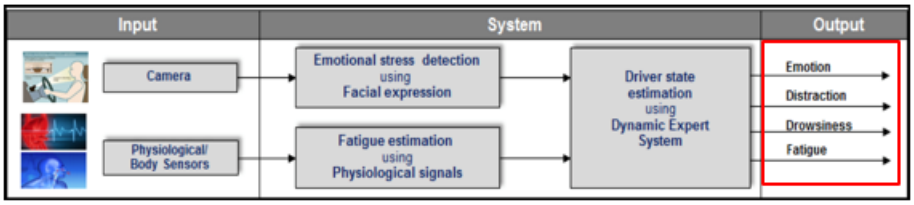
79. The '116 Infringing Instrumentalities comprise analyzing the facial characteristics and the physiological characteristics. Without limitation, *see*, *e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-transportation.pdf:



80. The '116 Infringing Instrumentalities comprise determining an emotional state based upon the analysis of the facial and physiological characteristics of the user. Without limitation, the '116 Infringing Instrumentalities determine a driver's state estimation including emotional stress detection and fatigue estimation (i.e., "emotional state") based upon the analysis of the facial and physiological characteristics of the user. Without limitation, *see*, *e.g.*, https://www.hitachivantara.com/en-us/pdfd/presentation/future-of-mobility-and-

transportation.pdf:





81. HL's acts of infringement of the 116 patent are willful and intentional under the standard of *Halo*. HL's infringement has been and remains clear, unmistakable and inexcusable. On information and belief, HL at least now knows or should know of its clear, unmistakable and inexcusable infringing conduct.

82. Including based upon the facts set forth above, MPV believes and contends that HL's knowing and intentional post-suit continuance of its unjustified, clear, and inexcusable infringement of the '116 patent since receiving notice (see above) of its infringement of the '116 patent, is willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful and flagrant, and that it constitutes egregious misconduct worthy of a finding of willful infringement. Accordingly, since at least receiving notice of this suit, HL has willfully infringed the '116 patent.

83. Further, since at least receiving notice of this suit, HL has actively induced the direct infringement of customers and/or end users, including by providing the '116 Infringing Instrumentalities and instructions/specifications for their use, and including with the intent that such direct infringement occur.

84. The '116 Infringing Instrumentalities clearly meet the asserted claim limitations in their normal and expected usage. On information and belief, normal and expected usage of the

‘116 Infringing Instrumentalities by customers and/or end users satisfies the claim limitations for direct infringement. Further, at minimum, the provision of products clearly capable of such infringing usage and/or provision of instructions/specifications for such infringing usage constitutes inducement of directly infringing usage.

85. Such direct and induced infringement has been and remains clear, unmistakable and inexcusable. On information and belief, HL knows or should know of the clear, unmistakable and inexcusable direct and induced infringing conduct. Thus, on information and belief, HL is specifically intending to induce direct infringement by customers and/or end users.

86. HL’s acts of direct, indirect and willful infringement of the ‘116 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of HL’s wrongful acts in an amount subject to proof at trial.

Count 4 – Infringement of U.S. Patent No. 6,396,599

87. The application for U.S. Patent No. 6,396,599 (the “‘599 patent”) was filed on December 21, 1998, and the patent issued on May 28, 2002.

88. At the time of the ‘599 application, there was a need to provide an economical photographic system that could be adjusted to compensate for different skin tones in accordance with customer preferences without concern as to the tone characteristics of the originating film or providing a plurality of different film types, each being directed to a different skin type. There was also a need to provide a system wherein the customer and/or photo lab could select manually or automatically the desired skin tone characteristics. The ‘599 inventions provided methods for eliminating and/or minimizing the problems of the prior art, and which could improve images provided on conventional photosensitive media, or in digital format.

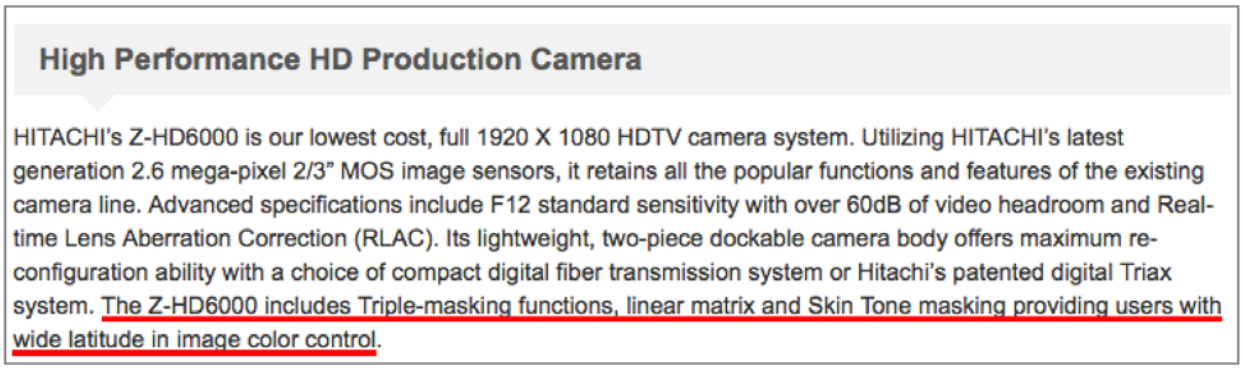
89. The foregoing noted shortcoming and other shortcomings in conventional prior art were solved by the unconventional and inventive methods of the ‘599 claimed inventions, which

comprise analyzing a digital image and modifying a colorimetric parameter within a portion of the image. Juxtaposing the '599 claimed inventions against the inferior, conventional state of the art illustrates in part the unconventionality and inventiveness of the '599 claimed inventions.

90. Claim 1 of the '599 patent covers: "A method of modifying images, comprising the steps of: a) analyzing a digital image file of an image so as to identify at least one predetermined colorimetric parameter; and b) modifying that portion of said image having said at least one predetermined colorimetric parameter to a selected second predetermined colorimetric parameter so as to produce a modified digital image."

91. At least claim 1 of the '599 patent has been infringed by Kokusai, including under 35 U.S.C. §271(a), at least by using cameras with skin tone masking such as the Z-HD6000 camera (the "'599 Infringing Instrumentalities"). Without limitation, sale, importation and/or use of the '599 Infringing Instrumentalities comprises and/or induces the steps noted below.

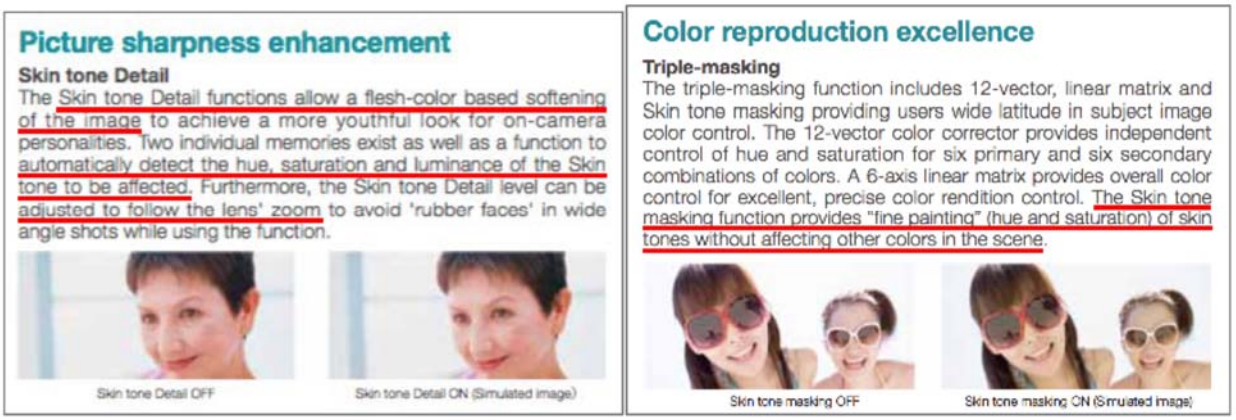
92. To the extent that the preamble is limiting, the '599 Infringing Instrumentalities comprise a method of modifying images. Without limitation, *see, e.g.*, https:// https://www.hitachikokusai.us/BroadcastandProfessionalCameras/Z-HD6000.html :



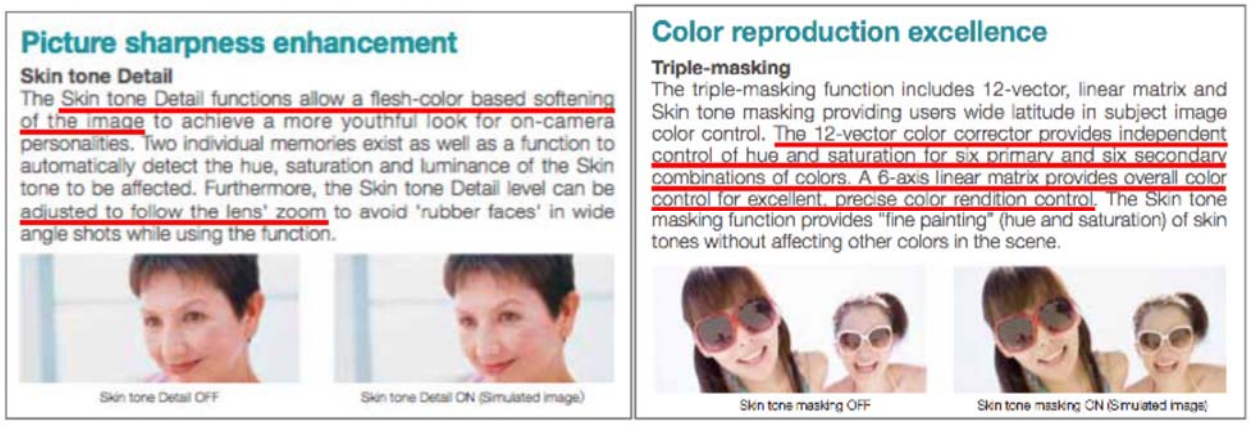
High Performance HD Production Camera

HITACHI's Z-HD6000 is our lowest cost, full 1920 X 1080 HDTV camera system. Utilizing HITACHI's latest generation 2.6 mega-pixel 2/3" MOS image sensors, it retains all the popular functions and features of the existing camera line. Advanced specifications include F12 standard sensitivity with over 60dB of video headroom and Real-time Lens Aberration Correction (RLAC). Its lightweight, two-piece dockable camera body offers maximum re-configuration ability with a choice of compact digital fiber transmission system or Hitachi's patented digital Triax system. The Z-HD6000 includes Triple-masking functions, linear matrix and Skin Tone masking providing users with wide latitude in image color control.

93. The '599 Infringing Instrumentalities comprise analyzing a digital image file of an image so as to identify at least one predetermined colorimetric parameter, for example, at least hue. Without limitation, *see, e.g.*, https:// https://www.hitachikokusai.us/idc/groups/hitachi kokusai/documents/supportingdocumentpdf/poc_021190.pdf :



94. The '599 Infringing Instrumentalities comprise modifying, e.g., adjusting, controlling and/or softening, that portion of said image having said at least one predetermined colorimetric parameter, for example, at least hue, to a selected second predetermined colorimetric parameter for example, at least a modified hue, so as to produce a modified digital image. Without limitation, *see, e.g.*, https:// https://www.hitachikokusai.us/idc/groups/hitachikokusai/documents/ supportingdocumentpdf/ poc_021190.pdf :



95. Kokusai's acts of infringement of the '599 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of Kokusai's wrongful acts in an amount subject to proof at trial.

Count 5 – Infringement of U.S. Patent No. 8,643,746

96. The application for U.S. Patent No. 8,643,746 (the "'746 patent") was filed on May 18, 2011, and the patent issued on February 4, 2014.

97. At the time of the ‘746 application, managing digital video content could be a difficult task. Videos were often represented visually with a thumbnail image of the first frame of the video. This may not provide much insight into the content of the video. Determining if a specific event is contained in a given video often required viewing the entire video. For a lengthy video, a user may prefer to be able to get a quick summary of the video without having to view the video in its entirety.

98. Digital videos also presented practical problems from a sharing perspective. Many digital capture devices recorded video at 30 or 60 frames per second, at spatial resolutions as high as 1920x1080 pixels. Even when compressed, the amount of data generated could make it impractical to share even relatively short videos.

99. Video editing software could be used to manually summarize a video into a shorter version that can be shared more easily. Manual video editing could be a lengthy, laborious process, however, and many users were not interested in manual editing.

100. Automatic video summarization algorithms existed as well. However, they were very complex, however, as it was necessary to decode the video to perform the analysis required to determine the video summary. Thus it was not possible on a digital capture device to immediately view a video summary corresponding to a just-captured video. This shortcoming made it difficult to facilitate quick review and sharing of captured videos.

101. When creating a video summary, it was often desirable to have a specific feature within the summary. The video summary was created to contain some or all of the video content in which a feature is present. Examples of such features can include people, pets, events, locations, activities or objects. Manually creating such a tailored video summary could be a tedious process. Using desktop software to generate such a tailored video summary prevented the ability to quickly review and share video summaries.

102. It was thus desirable to provide systems and methods for computing a video summary in a digital capture device. In particular, it was desirable to provide solutions that allow a video summary to be generated on a digital capture device with minimal delay at the completion of video capture. Also, it would be desirable to provide a video summary that contains a user-specified feature.

103. During prosecution of the ’746 patent, the primary prior art reference, and the benchmark for conventional prior art, was U.S. Published Patent Application No. 2011/0085778 to Iwase, *et al*. However, Iwase only discloses a single video image to which the index information functions as an index to be added to the exciting scene or the favorite scene in the video image. Among other things, Iwase does not disclose, using a data processor to automatically analyze image frames using a person recognition algorithm to identify a subset of the image frames that contain a particular person in a reference image; forming a video summary including fewer than all of the image frames in the video sequence, wherein the video summary includes at least part of the identified subset of image frames containing the particular person; storing the received video sequence in a storage memory; or storing the video summary in the storage memory as a separate summary digital video file.

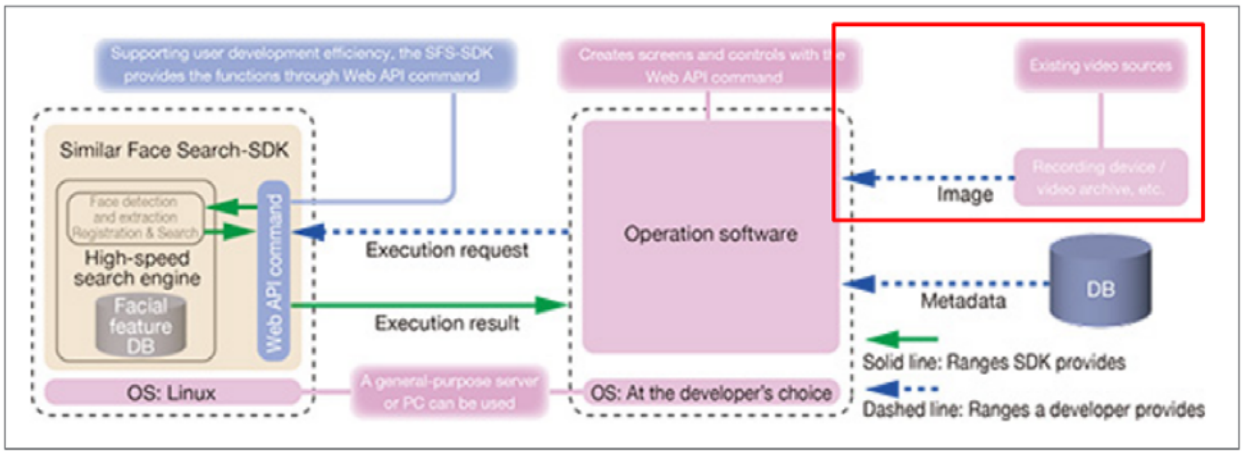
104. The foregoing noted shortcoming and other shortcomings in conventional prior art were solved by the unconventional and inventive methods of the ‘746 claimed inventions, which comprise using a data processor to automatically analyze the image frames using a person recognition algorithm to identify a subset of the image frames that contain the particular person; forming a video summary including fewer than all of the image frames in the video sequence, and storing the video summary in the storage memory as a separate summary digital video file.

105. Juxtaposing the ‘746 claimed inventions against the inferior, conventional state of the art illustrates in part the unconventionality and inventiveness of the ‘746 claimed inventions.

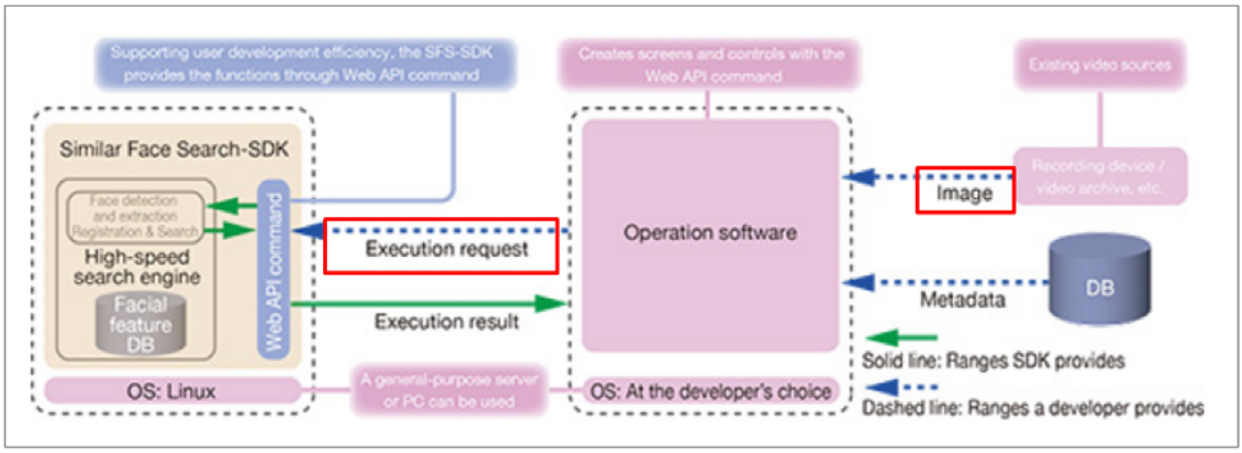
106. Claim 16 of the '746 patent covers: "[a] method comprising: receiving a video sequence including a time sequence of image frames; receiving a designation with respect to a reference image, wherein the reference image contains a particular person; using a data processor to automatically analyze the image frames using a person recognition algorithm to identify a subset of the image frames that contain the particular person; forming a video summary including fewer than all of the image frames in the video sequence, wherein the video summary includes at least part of the identified subset of image frames containing the particular person; storing the received video sequence in a storage memory; and storing the video summary in the storage memory as a separate summary digital video file."

107. At least claim 16 of the '746 patent is infringed by Kokusai, including under 35 U.S.C. §271(a)-(b), at least by methods comprising the use of Kokusai's camera systems using Similar Face Search technology (the "'746 Infringing Instrumentalities"), and/or by inducement of the use of the '746 Infringing Instrumentalities. Without limitation, sale, importation and/or use of the '746 Infringing Instrumentalities has comprised and/or has previously induced the steps noted below.

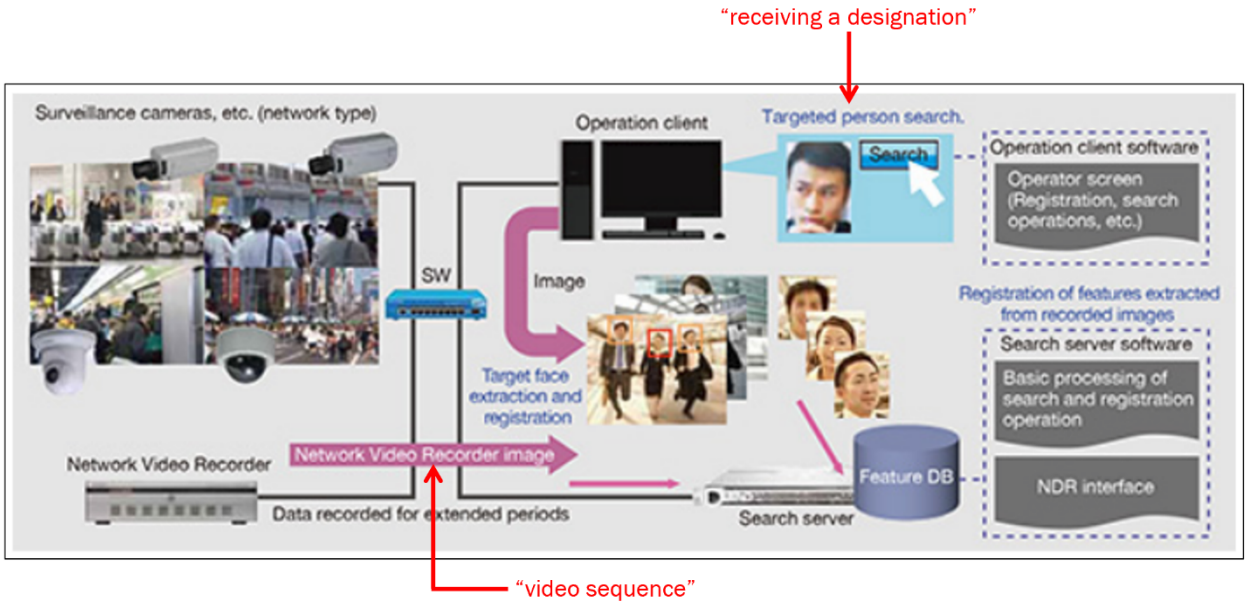
108. The '746 Infringing Instrumentalities comprise receiving a video sequence including a time sequence of image frames (e.g., recorded video). Without limitation, *see, e.g.*: http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:



109. The '746 Infringing Instrumentalities comprise receiving a designation with respect to a reference image (*e.g.*, an image), wherein the reference image contains a particular person (*e.g.*, a person of interest). Without limitation, *see, e.g.*, http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

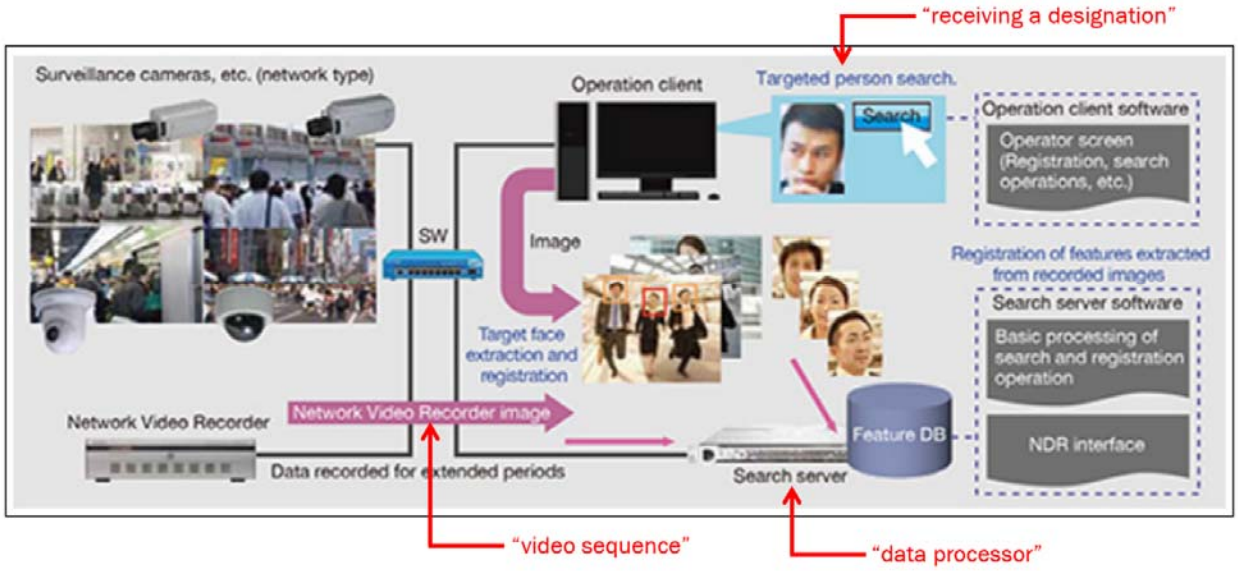


and



110. The '746 Infringing Instrumentalities comprise using a data processor (e.g., a search-engine) to automatically analyze the image frames using a person recognition algorithm (*e.g.*, a face detection algorithm) to identify a subset of the image frames that contain the particular person (see above). Without limitation, *see, e.g.*: http://www.hitachi-

kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

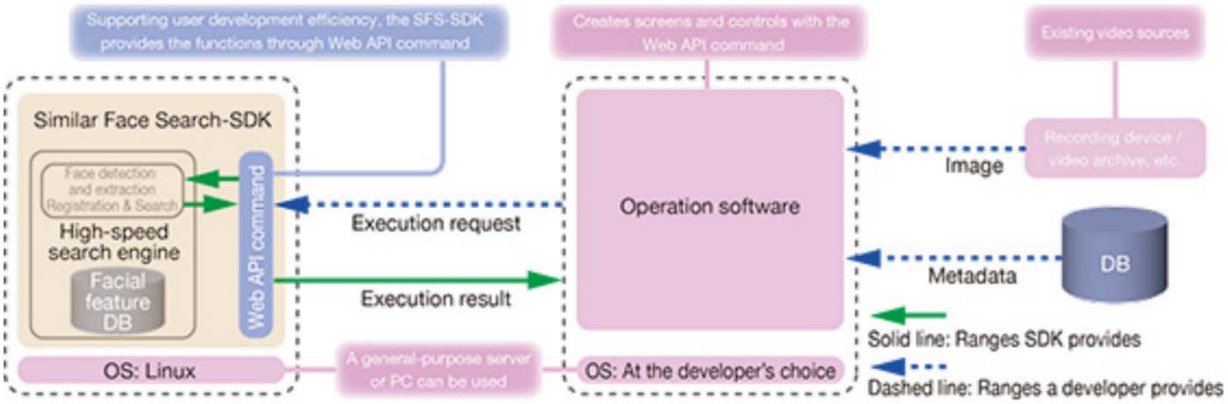


111. The '746 Infringing Instrumentalities comprise forming a video summary (*e.g.*, videos represented by thumbnails) including fewer than all of the image frames in the video sequence, wherein the video summary includes at least part of the identified subset of image frames containing the particular person (see above). Without limitation, *see*, *e.g.*, http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

	Name	Description
1	Live/Rec. video panel	Displays live or recorded video from a registered camera and video from an external movie file.
2	Search image panel	Displays a search target image (search key image). Allows a user to select or de-select the face of a targeted person.
3	Search result panel	Displays video thumbnails of the search results

112. The '746 Infringing Instrumentalities comprise storing the received video sequence in a storage memory; and storing the video summary (see above) in the storage memory as a

separate summary digital video file. Without limitation, see, e.g., http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:



113. Kokusai's acts of infringement of the '746 patent have been willful and intentional under the standard of *Halo*. Kokusai was made aware of its infringement of the '746 patent, including via an infringement chart, at least in July 2019. Kokusai's infringement has been and remains clear, unmistakable and inexcusable. On information and belief, Kokusai knew or should have known of its clear, unmistakable and inexcusable infringing conduct at least as early as July 2019.

114. Including based upon the facts set forth above, MPV believes and contends that Kokusai's knowing and intentional pre-suit and post-suit continuance of its unjustified, clear, and inexcusable infringement of the '746 patent since receiving notice (see above) of its infringement of the '746 patent, is willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful and flagrant, and that it constitutes egregious misconduct worthy of a finding of willful infringement. Accordingly, since at least July 2019, Kokusai has willfully infringed the '746 patent.

115. Further, since at least July 2019, Kokusai has actively induced the direct infringement of customers and/or end users, including by providing the '746 Infringing Instrumentalities and instructions/specifications for their use, and including with the intent that such direct infringement occur.

116. The '746 Infringing Instrumentalities clearly meet the asserted claim limitations in their normal and expected usage. On information and belief, normal and expected usage of the '746 Infringing Instrumentalities by customers and/or end users satisfies the claim limitations for direct infringement. Further, at minimum, the provision of products clearly capable of such infringing usage and/or provision of instructions/specifications for such infringing usage constitutes inducement of directly infringing usage.

117. Further, as noted above, Kokusai made aware of infringement of the '746 patent through use of the '746 Infringing Instrumentalities, including via an infringement chart, at least in July 2019. Such direct and induced infringement has been and remains clear, unmistakable and inexcusable. On information and belief, Kokusai knew or should have known of the clear, unmistakable and inexcusable direct and induced infringing conduct at least as early as July 2019. Thus, on information and belief, Kokusai has, since at least July 2019, specifically intended to induce direct infringement by customers and/or end users.

118. Kokusai's acts of direct, indirect and willful infringement of the '746 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of Kokusai's wrongful acts in an amount subject to proof at trial.

Count 6 – Infringement of U.S. Patent No. 8,665,345

119. The application for U.S. Patent No. 8,665,345 (the "'345 patent) was filed on May 18, 2011, and the patent issued on March 2, 2014.

120. At the time of the '345 invention, managing digital video content could be a difficult task. Videos were often represented visually with a thumbnail image of the first frame of the video. This may not provide much insight into the content of the video. Determining if a specific event is contained in a given video often required viewing the entire video. For a lengthy video, users would prefer a quick summary without having to view the video in its entirety. Digital

videos could also present practical problems from a sharing perspective, because, even when compressed, the amount of data generated could make it impractical to share even relatively short videos.

121. At the time of the ‘345 invention, video editing software could be used to manually summarize a video into a shorter version that can be shared more easily. However, manual video editing could be a lengthy, laborious process, and many users are not interested in manual editing. Automatic video summarization algorithms also existed, but they were very complex, as it was necessary to decode the video to perform the analysis required to determine the video summary. Thus, it was not possible on a digital capture device to immediately view a video summary corresponding to a just captured video. This shortcoming in particular made it difficult to facilitate quick review and sharing of captured videos.

122. Further, at the time of the ‘345 invention, manually creating a tailored video summary in which a feature, for example a person, was present could be a tedious process.

123. It was thus beneficial to provide systems and methods for computing a video summary. In particular, it was beneficial to automatically analyze image frames in a video sequence using a feature recognition algorithm to identify a subset of the image frames that contain a feature of interest and have a desired characteristic, and to form a video summary including at least part of the identified subset of image frames containing the feature of interest and having the desired characteristic.

124. During prosecution of the ’345 patent, the primary prior art reference, and the benchmark for conventional prior art, was U.S. Published Patent Application No. 2011/0085778 to Iwase, *et al*. However, the Patent Examiner acknowledged that Iwase did not disclose "reference data separate from a reference in the captured video sequence" that is used to "form a video summary ... containing the feature of interest." Further, even the cited combination of Iwase and

U.S. Published Patent Application No. 2010/0104146 to Momosaki did not disclose, among other things, reference data including information specifying a "desired characteristic" of the image frames or a video summary including fewer than all of the image frames in the captured video sequence, wherein the video summary includes at least part of the identified subset of image frames containing the feature of interest and having the "desired characteristic."

125. Juxtaposing the '345 claimed inventions against the inferior, conventional state of the art represented by Iwase and Momosaki, illustrates in part the unconventionality and inventiveness of the '345 claimed inventions.

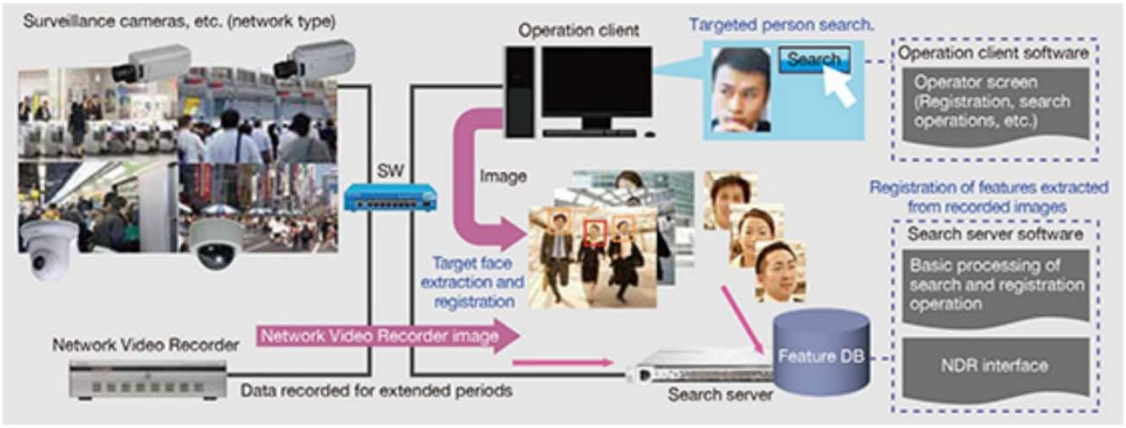
126. The inventive features of '345 claimed inventions have multiple inventive advantages over conventional prior art, including with respect to overcoming the shortcomings noted above.

127. Claim 16 of the '345 patent covers a "method comprising: receiving a video sequence including a time sequence of image frames; specifying reference data separate from a reference in the received video sequence, wherein the reference data indicates a feature of interest, and wherein the reference data includes information specifying a desired characteristic of the image frames; using a data processor to automatically analyze the image frames using a feature recognition algorithm to identify a subset of the image frames that contain the feature of interest and have the desired characteristic; forming a video summary including fewer than all of the image frames in the video sequence, wherein the video summary includes at least part of the identified subset of image frames containing the feature of interest and having the desired characteristic; and storing a representation of the video summary in a processor-accessible storage memory."

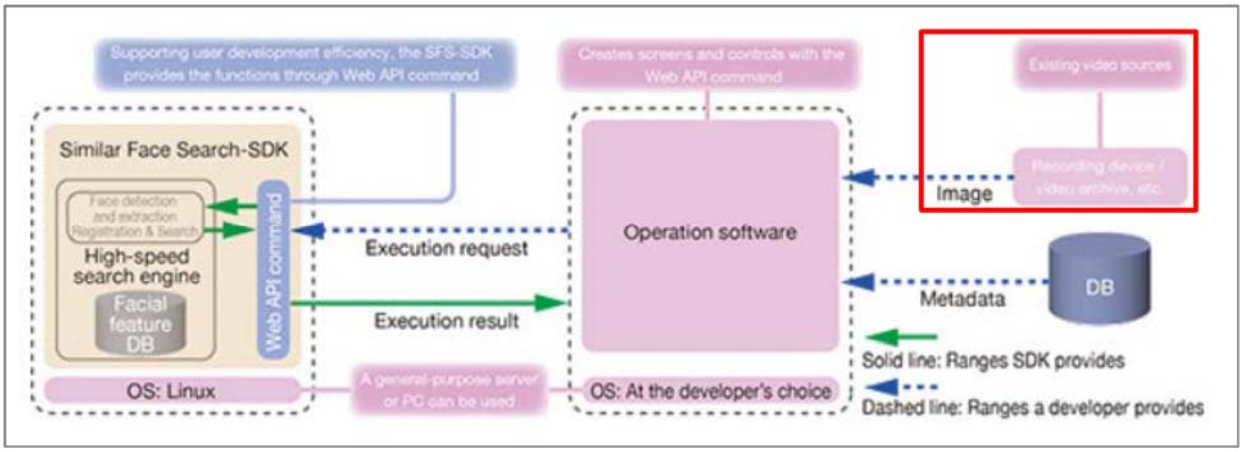
128. At least claim 16 of the '345 patent is infringed by Kokusai, including under 3 35 U.S.C. §271(a)-(b), by methods comprising the use of Similar Face Search technology (the "'345 Infringing Instrumentalities"), and/or by inducement of the use of the "'345 Infringing

Instrumentalities. Without limitation, sale, importation and/or use of the '345 Infringing Instrumentalities comprises and/or induces the steps noted below.

129. The ''345 Infringing Instrumentalities comprise receiving a video sequence including a time sequence of image frames. Without limitation, *see, e.g.*: http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

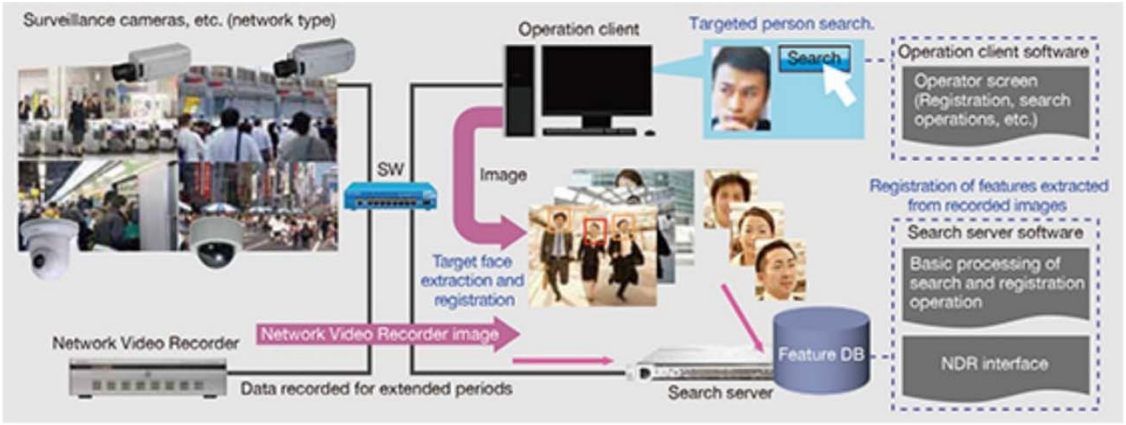


and

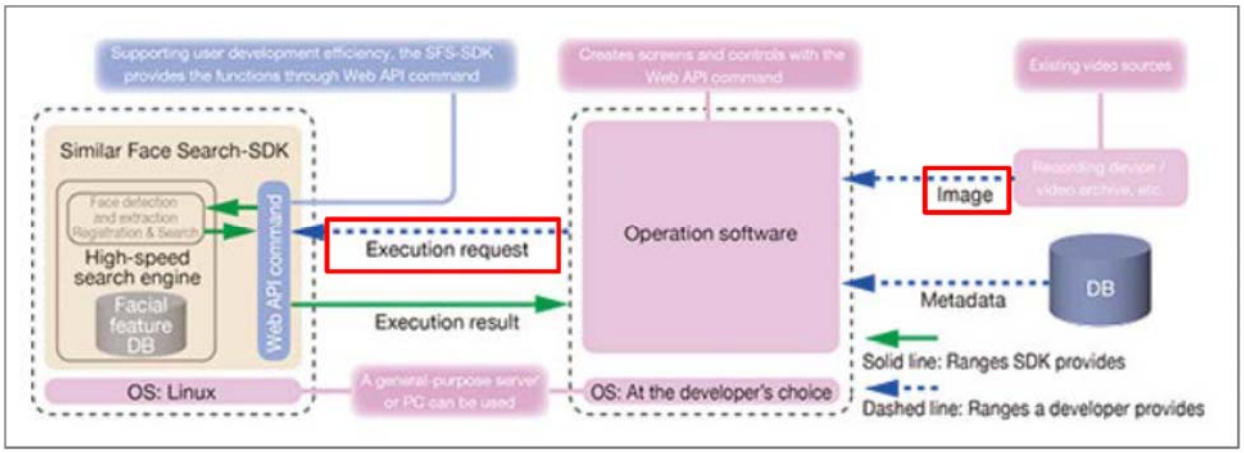


130. The ''345 Infringing Instrumentalities comprise specifying reference data (e.g., a request) separate from a reference in the received video sequence, wherein the reference data indicates a feature of interest (*e.g.*, the face of a person of interest), and wherein the reference data includes information specifying a desired characteristic (e.g., information indicative of the face of a person of interest) of the image frames. Without limitation, *see, e.g.*: http://www.hitachi-

kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

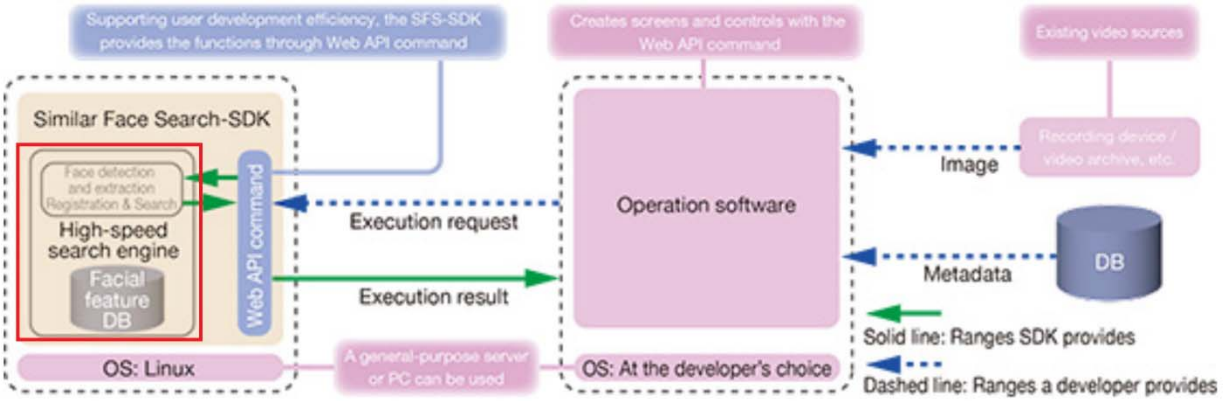


and



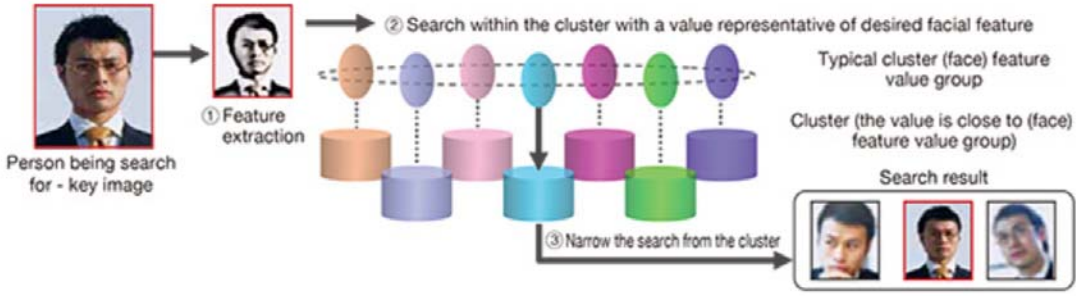
131. The ‘‘345 Infringing Instrumentalities comprise using a data processor to automatically analyze the image frames using a feature recognition algorithm to identify a subset of the image frames that contain the feature of interest (see above) and have the desired characteristic (see above). Without limitation, *see, e.g.* http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

and



and

DB containing as many as thirty six (36) million faces.

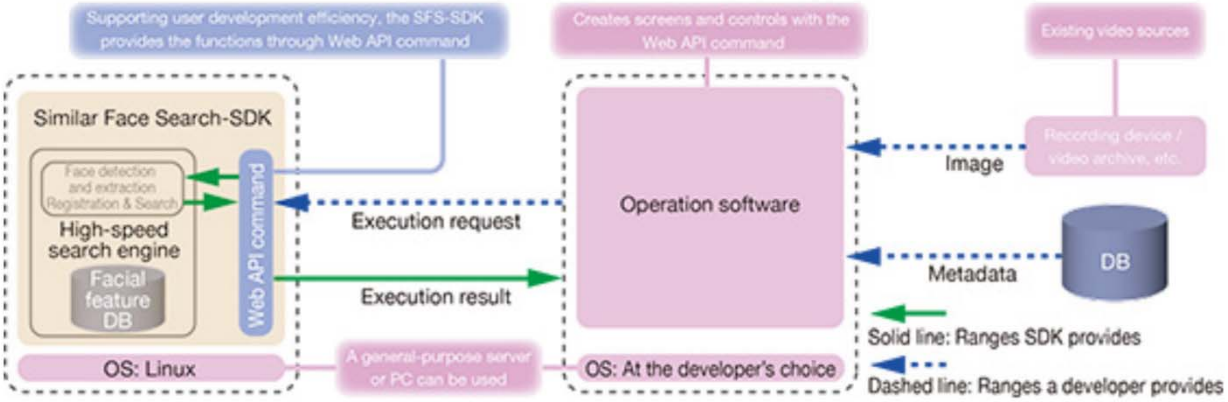


132. The ‘‘345 Infringing Instrumentalities comprise forming a video summary including fewer than all of the image frames in the video sequence (*e.g.*, a short sequence of video frames), wherein the video summary includes at least part of the identified subset of image frames containing the feature of interest and having the desired characteristic; and storing a representation of the video summary in a processor-accessible storage memory. Without limitation, *see, e.g.* http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

	Name	Description
1	Live/Rec. video panel	Displays live or recorded video from a registered camera and video from an external movie file.
2	Search image panel	Displays a search target image (search key image). Allows a user to select or de-select the face of a targeted person.
3	Search result panel	Displays video thumbnails of the search results

"video summary"

and



133. Kokusai's acts of infringement of the '345 patent have been willful and intentional under the standard of *Halo*. Kokusai was made aware of its infringement of the '345 patent, including via an infringement chart, at least in July 2019. Kokusai's infringement has been and remains clear, unmistakable and inexcusable. On information and belief, Kokusai knew or should have known of its clear, unmistakable and inexcusable infringing conduct at least as early as July 2019.

134. Including based upon the facts set forth above, MPV believes and contends that Kokusai's knowing and intentional pre-suit and post-suit continuance of its unjustified, clear, and inexcusable infringement of the '345 patent since receiving notice (see above) of its infringement of the '345 patent, is willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful and

flagrant, and that it constitutes egregious misconduct worthy of a finding of willful infringement. Accordingly, since at least July 2019, Kokusai has willfully infringed the ’345 patent.

135. Further, since at least July 2019, Kokusai has actively induced the direct infringement of customers and/or end users, including by providing the ‘345 Infringing Instrumentalities and instructions/specifications for their use, and including with the intent that such direct infringement occur.

136. The ‘345 Infringing Instrumentalities clearly meet the asserted claim limitations in their normal and expected usage. On information and belief, normal and expected usage of the ‘345 Infringing Instrumentalities by customers and/or end users satisfies the claim limitations for direct infringement. Further, at minimum, the provision of products clearly capable of such infringing usage and/or provision of instructions/specifications for such infringing usage constitutes inducement of directly infringing usage.

137. Further, as noted above, Kokusai was made aware of infringement of the ‘345 patent through use of the ‘345 Infringing Instrumentalities, including via an infringement chart, at least in July 2019. Such direct and induced infringement has been and remains clear, unmistakable and inexcusable. On information and belief, Kokusai knew or should have known of the clear, unmistakable and inexcusable direct and induced infringing conduct at least as early as July 2019. Thus, on information and belief, Kokusai has, since at least July 2019, specifically intended to induce direct infringement by customers and/or end users.

138. Kokusai’s acts of direct, indirect and willful infringement of the ‘345 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of Kokusai’s wrongful acts in an amount subject to proof at trial.

Count 7 – Infringement of U.S. Patent No. 9,013,604

139. The application for U.S. Patent No. 9,013,604 (the “‘604 patent”) was filed on

December 27, 2013, and the patent issued on April 21, 2015. This application is also a continuation of Continuation of application No. 13/110,056, filed on May 18, 2011, which is now the '746 patent noted above.

140. At the time of the '604 priority application, managing digital video content could be a difficult task. Videos were often represented visually with a thumbnail image of the first frame of the video. This may not provide much insight into the content of the video. Determining if a specific event is contained in a given video often required viewing the entire video. For a lengthy video, a user may prefer to be able to get a quick summary of the video without having to view the video in its entirety.

141. Digital videos also presented practical problems from a sharing perspective. Many digital capture devices recorded video at 30 or 60 frames per second, at spatial resolutions as high as 1920x1080 pixels. Even when compressed, the amount of data generated could make it impractical to share even relatively short videos.

142. Video editing software could be used to manually summarize a video into a shorter version that can be shared more easily. Manual video editing could be a lengthy, laborious process, however, and many users were not interested in manual editing.

143. Automatic video summarization algorithms existed as well. However, they were very complex, however, as it was necessary to decode the video to perform the analysis required to determine the video summary. Thus it was not possible on a digital capture device to immediately view a video summary corresponding to a just-captured video. This shortcoming made it difficult to facilitate quick review and sharing of captured videos.

144. When creating a video summary, it was often desirable to have a specific feature within the summary. The video summary was created to contain some or all of the video content in which a feature is present. Examples of such features can include people, pets, events, locations,

activities or objects. Manually creating such a tailored video summary could be a tedious process. Using desktop software to generate such a tailored video summary prevented the ability to quickly review and share video summaries.

145. It was thus desirable to provide systems and methods for computing a video summary in a digital capture device. In particular, it was desirable to provide solutions that allow a video summary to be generated on a digital capture device with minimal delay at the completion of video capture. Also, it would be desirable to provide a video summary that contains a user-specified feature.

146. During prosecution of the parent ’604 patent, the primary prior art reference, and the benchmark for conventional prior art, was U.S. Published Patent Application No. 2011/0085778 to Iwase, *et al*. However, Iwase only discloses a single video image to which the index information functions as an index to be added to the exciting scene or the favorite scene in the video image. Among other things, Iwase does not disclose receiving a designation regarding a reference image containing a particular person, analyzing image frames to identify a subset of the image frames that contain the particular person, and forming/storing a summary including at least part of the identified subset of image frames containing the particular person.

147. The foregoing noted shortcoming and other shortcomings in conventional prior art were solved by the unconventional and inventive methods of the ‘604 claimed inventions, which comprise receiving a designation regarding a reference image containing a particular person, analyzing image frames to identify a subset of the image frames that contain the particular person, and forming/storing a summary including at least part of the identified subset of image frames containing the particular person.

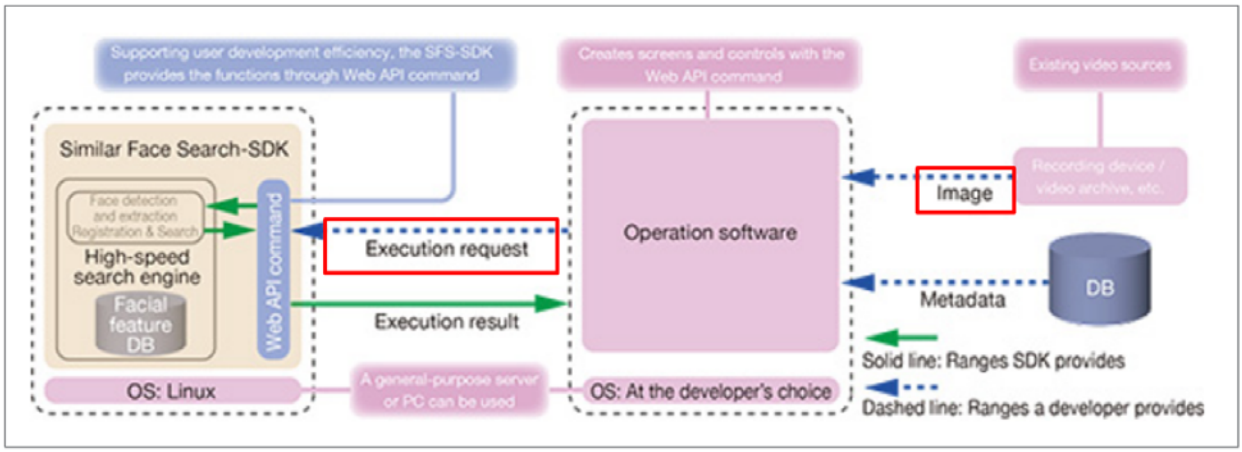
148. Juxtaposing the ‘604 claimed inventions against the inferior, conventional state of the art illustrates in part the unconventionality and inventiveness of the ‘604 claimed inventions.

149. The inventive features of '604 claimed inventions have multiple inventive advantages over conventional prior art, including with respect to overcoming the shortcomings noted above.

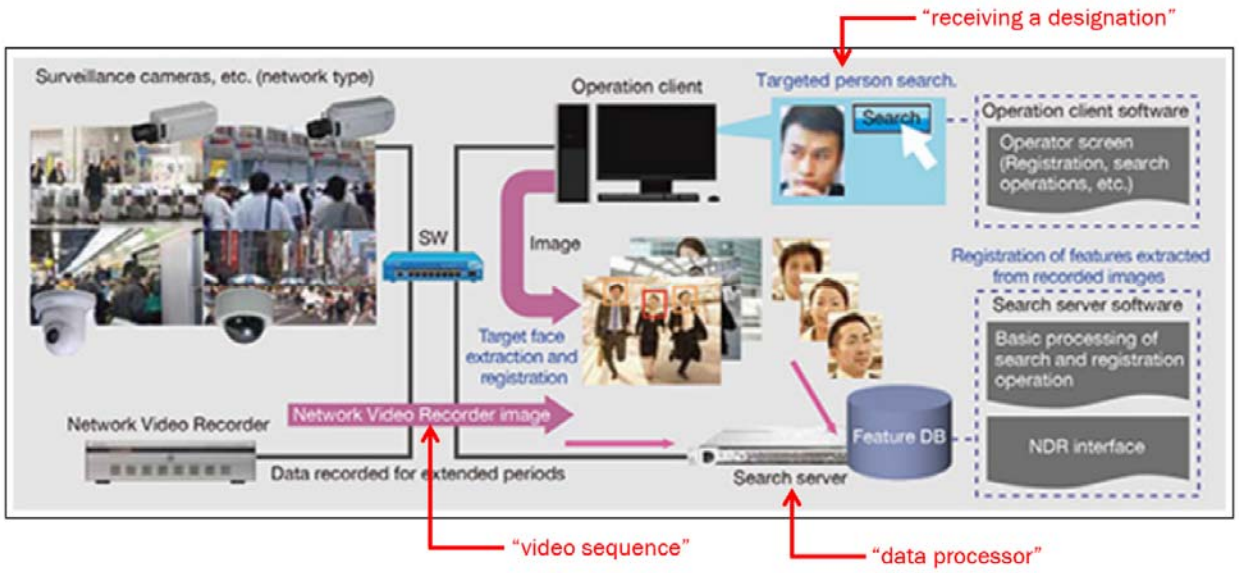
150. Claim 1 of the '604 patent covers: "[a] method comprising: receiving a designation regarding a reference image, wherein the reference image contains a particular person; analyzing, using a processing system, image frames to identify a subset of the image frames that contain the particular person; forming, using the processing system, a summary including fewer than all of the image frames, wherein the summary includes at least part of the identified subset of image frames containing the particular person; and storing the summary in storage memory as a separate summary file."

151. At least claim 1 of the '604 patent is infringed by Kokusai, including under 35 U.S.C. §271(a)-(b), at least by using Similar Face Search technology and/or Live Face Matching technology (the "'604 Infringing Instrumentalities"), and/or by inducing the use of the 604 Infringing Instrumentalities. Without limitation, sale, importation and/or use of the '604 Infringing Instrumentalities has comprised and/or has previously induced the steps noted below.

152. The '604 Infringing Instrumentalities comprise receiving a designation regarding a reference image (*e.g.*, receiving a request including an image), wherein the reference image contains a particular person (*e.g.*, a person of interest). Without limitation, *see*, *e.g.*, http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html, http://www.hitachi.us/products/for-government/security-products:



153. The '604 Infringing Instrumentalities comprise analyzing, using a processing system (e.g., a processor), image frames to identify a subset of the image frames (i.e., those frames in the video) that contain the particular person. Without limitation, *see, e.g.*, http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:



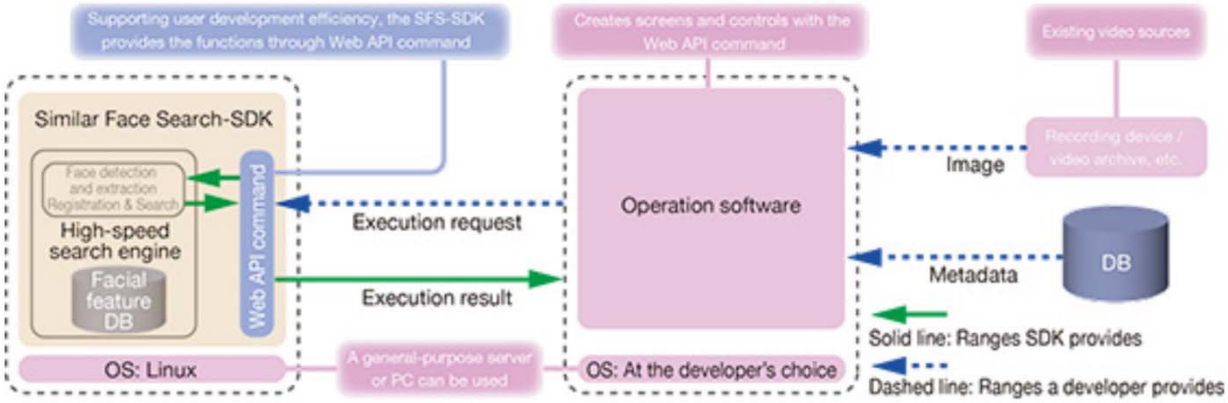
154. The '604 Infringing Instrumentalities comprise forming, using the processing system, a summary including fewer than all of the image frames (*e.g.*, extracting a short sequence of video frames), wherein the summary includes at least part of the identified subset of image frames including the particular person (e.g., includes a short sequence of those frames containing the person of interest). Without limitation, *see, e.g.*, http://www.hitachi-

kokusai.co.jp/global/en/products/camera/network/sfs/index.html:

	Name	Description
1	Live/Rec. video panel	Displays live or recorded video from a registered camera and video from an external movie file.
2	Search image panel	Displays a search target image (search key image). Allows a user to select or de-select the face of a targeted person.
3	Search result panel	Displays video thumbnails of the search results

"video summary"

155. The '604 Infringing Instrumentalities comprise storing the summary in storage memory (*e.g.*, a database) as a separate summary file. Without limitation, *see*, *e.g.*, http://www.hitachi-kokusai.co.jp/global/en/products/camera/network/sfs/index.html:



156. Kokusai's acts of infringement of the '604 patent have been willful and intentional under the standard of *Halo*. Kokusai was made aware of its infringement of the '604 patent, including via an infringement chart, at least in July 2019. Kokusai's infringement has been and remains clear, unmistakable and inexcusable. On information and belief, Kokusai knew or should have known of its clear, unmistakable and inexcusable infringing conduct at least as early as July 2019.

157. Including based upon the facts set forth above, MPV believes and contends that

Kokusai's knowing and intentional pre-suit and post-suit continuance of its unjustified, clear, and inexcusable infringement of the '604 patent since receiving notice (see above) of its infringement of the '604 patent, is willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful and flagrant, and that it constitutes egregious misconduct worthy of a finding of willful infringement. Accordingly, since at least July 2019, Kokusai has willfully infringed the '604 patent.

158. Further, since at least July 2019, Kokusai has actively induced the direct infringement of customers and/or end users, including by providing the '604 Infringing Instrumentalities and instructions/specifications for their use, and including with the intent that such direct infringement occur.

159. The '604 Infringing Instrumentalities clearly meet the asserted claim limitations in their normal and expected usage. On information and belief, normal and expected usage of the '604 Infringing Instrumentalities by customers and/or end users satisfies the claim limitations for direct infringement. Further, at minimum, the provision of products clearly capable of such infringing usage and/or provision of instructions/specifications for such infringing usage constitutes inducement of directly infringing usage.

160. Further, as noted above, Kokusai was made aware of infringement of the '604 patent through use of the '604 Infringing Instrumentalities, including via an infringement chart, at least in July 2019. Such direct and induced infringement has been and remains clear, unmistakable and inexcusable. On information and belief, Kokusai knew or should have known of the clear, unmistakable and inexcusable direct and induced infringing conduct at least as early as July 2019. Thus, on information and belief, Kokusai has, since at least July 2019, specifically intended to induce direct infringement by customers and/or end users.

161. Kokusai's acts of direct, indirect and willful infringement of the '604 patent have caused damage to MPV, and MPV is entitled to recover damages sustained as a result of Kokusai's

wrongful acts in an amount subject to proof at trial.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff hereby respectfully requests that this Court enter judgment in favor of Plaintiff and against Hitachi, and that the Court grant Plaintiff the following relief:

A. An adjudication that one or more claims of the Patents-in-Suit has been directly and/or indirectly infringed by Defendants as noted above;

B. An award to Plaintiff of damages adequate to compensate Plaintiff for Defendants' past infringement, together with pre-judgment and post-judgment interest, and any continuing or future infringement through the date such judgment is entered, including interest, costs, expenses, and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;

C. A grant of preliminary and permanent injunction pursuant to 35 U.S.C. § 283, enjoining Defendants and all persons, including their officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert or participation therewith, from making, using, offering to sell, or selling in the United States or importing into the United States any methods, systems, or computer readable media that directly or indirectly infringe any claim of the Patents-in-Suit, or any methods, systems, or computer readable media that are colorably different;

D. That this Court declare this to be an exceptional case and award Plaintiff reasonable attorneys' fees and costs in accordance with 35 U.S.C. § 285; and

E. A judgment and order requiring Defendants to pay Plaintiff their damages, costs, expenses, fees, and prejudgment and post-judgment interest for Defendants' infringement of the Patents-in-Suit as provided under 35 U.S.C. §§ 284 and/or 285; and

F. Any and all further relief for which Plaintiff may show itself justly entitled that this Court

deems just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiff hereby respectfully requests a trial by jury of any issues so triable by right.

April 7, 2020

Respectfully submitted,

/s/ *John J. Edmonds*

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